Department of Toxic Substances Control

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August 27, 2019

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APPROVAL OF REPORT FOR THE THIRD FIVE-YEAR REVIEW - PALOS VERDES LANDFILL, ROLLING HILLS ESTATES (SITE CODE: 400116)

Dear Ms. Ruffell:

The Department of Toxic Substances Control (DTSC) has reviewed the Report for the Third Five-Year Review (Report) for the Palos Verdes Landfill (Site) prepared by the County Sanitation Districts of Los Angeles County (County) and dated June 19, 2019. The Report was reviewed pursuant to Enforceable Agreement Docket # HSA 87/88-044 between DTSC (formally part of the State Department of Health Services) and the County.

However, DTSC is still evaluating the "Report for the Evaluation of Groundwater Containment System Performance at the Palos Verdes Landfill". As requested by DTSC, the report was submitted on July 8, 2019 to evaluate the capture and control effectiveness of the current subsurface slurry wall and extraction well array on the Hawthorne Boulevard side of the Site. DTSC will make a final determination regarding the effectiveness of the Hawthorne extraction and treatment system at a later date.

The Report concludes that the environmental containment/control systems are functioning properly and are protective. DTSC concurs with these conclusions and hereby approves the Report for the Site.

Should you have any questions or comments, please feel free to contact Mr. Daniel Zogaib, Project Manager at Daniel.Zogaib@dtsc.ca.gov or at (714) 484-5483, or me at Javier.Hinojosa@dtsc.ca.gov or at (714) 484-5484.

Sincerely,

for Javier Hinojosa, Chief
Brownfield Restoration & School Evaluation Branch
Site Mitigation & Restoration Program

mv/dz/jh

Brownfields Restoration and School Evaluation Branch Reading File

Palos Verdes Landfill
Third Five-Year Review
Rolling Hills Estates, California

Approved by:
Department of Toxic Substances Control
Cypress, California

August 27, 2019

Prepared by:

County Sanitation Districts of Los Angeles County
1955 Workman Mill Road
Whittier, CA 90601

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1. INTRODUCTION

Pursuant to the Operation and Maintenance (O&M) Agreement (DTSC, 1998) between the County Sanitation Districts of Los Angeles County (Sanitation Districts) and the Department of Toxics Substances Control (DTSC) for the Palos Verdes Landfill (site, PVLF), remedial actions implemented at the site are reviewed every five years. DTSC is the primary regulatory agency overseeing the implementation and the performance review of the remedial activities at the PVLF. The first Five-Year Review for the PVLF was completed and approved by DTSC on November 4, 2009 (DTSC, 2009). The second Five-Year Review for the site was completed and approved by DTSC on January 6, 2015 (DTSC, 2015). This is the third Five-Year Review of the PVLF and is a reevaluation of the site's O&M records with respect to the facility performance since the last Five-Year Review.

2. BACKGROUND

The PVLF is located at 25706 Hawthorne Boulevard, Rolling Hills Estates, Los Angeles County, California (Figure 1) and covers approximately 291 acres. About 83 acres of the site are operated by the County of Los Angeles Department of Parks and Recreation as the South Coast Botanic Garden; 35 acres are operated by the City of Rolling Hills Estates as Ernie Howlett Park; and the remaining 173 acres, referred to as the Main Site, are operated by the Sanitation Districts with limited access to the public (Figure 2).

From the early 1900s until the 1950s, much of the area covered by the PVLF was operated as a diatomite mine. In 1952, Ben K. Kazarian and Sons (BKK) began landfill operations in the area now developed into the South Coast Botanic Garden. In 1957, the Sanitation Districts acquired the landfill from BKK and assumed landfill operations. The Sanitation Districts expanded the landfill and operated the facility until December 1980 when the landfill reached design capacity. A portion of the facility was permitted to receive hazardous waste and approximately 3 to 4 percent of the waste received at the landfill was considered hazardous. The types of hazardous waste accepted were primarily liquid wastes that included: acid wastes, solvents, alkaline wastes, tetraethyl lead sludge, chemical toilet wastes, hazardous tank bottoms, contaminated soil and sand, brine, pesticides, and other hazardous wastes (primarily refinery, oil field, and oil terminal wastes) (Sanitation Districts, 1997).

Volatile organic compounds (VOCs) were first detected in groundwater at the site in the early 1980s. As a result, a comprehensive Remedial Investigation (RI) and a Feasibility Study (FS) were conducted (Sanitation Districts, 1995a and 1995b). A Remedial Action Plan (RAP) was finalized in September 1995 (Sanitation Districts, 1995c) to implement a remedial action program at the site. The remedial action objectives established in the RI/FS and RAP include:

- Maintain and/or operate existing landfill control and monitoring facilities, including the landfill cover, and gas collection and groundwater containment systems; and
- Control offsite downgradient groundwater contamination from the landfill.

The recommended remedial actions for the site were implemented and certified by DTSC on April 13, 1999. Since the certification, DTSC reviews facility performance every five years to ensure that remedial actions continue to be protective of human health and the environment. The first Five-Year Review of the remedial actions for the PVLF was approved in 2009 and found the environmental control systems effective and that the site is safe and well maintained. A second Five-Year Review of the site, which was approved in 2015, found that the environmental control systems continue to be protective of human health and the environment. As a result, no additional remedial measures were recommended.

3. SITE ACTIVITIES FOLLOWING THE SECOND FIVE-YEAR REVIEW

Since the second Five-Year Review, the Sanitation Districts have continued to operate, maintain, monitor, optimize, and report the performance of the remedial measures implemented at the site. Table 1 provides a listing of specific O&M activities/projects that were implemented since 2014 at the site along with a listing of associated documentation. These documents have been reviewed to ensure that remedial action objectives are being fulfilled at the site. Also included in Table 1 is a list of ongoing monitoring activities routinely performed at the site.

Table 1 – O&M Activities/Project and Routine Monitoring Work

Activity	Document	Date
O&M Activities and Projects 2014-2018		
Evaluation of Laboratory Analytical Methods to Lower Detection Limits for Volatile Organic Compounds	PVLF Quarterly O&M Summary Reports	First Quarter through Second Quarter 2014
Redevelopment of Groundwater Extraction Wells E09 and E12	Well Services (work conducted by Gregg Drilling & Testing, Inc., 2014)	February 2014
Redevelopment of Groundwater Extraction Well E14	Well Development/Sampling/Testing Services (work conducted by Gregg Drilling & Testing, Inc., 2017)	April 2017
Redevelopment of Groundwater Extraction Wells E02-E04, and E09	Monitoring Well Development Log (work conducted by Gregg Drilling & Testing, Inc., 2017)	December 2017
Redevelopment of Groundwater Extraction Well E07	Cascade Daily Work Report (work conducted by Cascade, 2018)	March 2018
Evaluation of Groundwater Containment Performance of Extraction Well Array for the South Coast Botanic Garden	PVLF Quarterly O&M Summary Reports	First Quarter through Fourth Quarter 2018

Table 1 – O&M Activities/Project and Routine Monitoring Work (continued)

Activity	Document	Date
Evaluation of Groundwater Containment and Monitoring Systems along Hawthorne Boulevard	• Groundwater Containment System Performance Evaluation Work Plan to DTSC	September 2018
Routine Monitoring Work		
Surface Air and Subsurface Gas Monitoring	• Monthly Monitoring and Reporting Program for Boundary Gas Probes (submitted to Los Angeles County Department of Public Health) • Quarterly Palos Verdes Landfill Monitoring Report for Compliance with SCAQMD Rule 1150.1 (submitted to SCAQMD, cc: DTSC) • Quarterly South Coast Botanic Garden (Palos Verdes Landfill) Gift Shop Gas Monitoring Report (submitted to Los Angeles County Department of Public Works) • Annual Palos Verdes Landfill Flare Source Testing Report for Compliance with SCAQMD Rule 1150.1 (submitted to SCAQMD) • Palos Verdes Landfill (Facility ID 24520) Annual Monitoring Report for Compliance with SCAQMD Rule 1150.1 (submitted to SCAQMD, cc: DTSC)	Monthly, Quarterly, and Annually
Groundwater Monitoring	Palos Verdes Landfill Quarterly O&M Summary Reports (submitted to DTSC)	Quarterly
Storm Water Inspections/ Reporting	• Quarterly and annual site inspections (submitted to RWQCB) • Storm Water Annual reports (submitted to RWQCB)	Quarterly and Annually through July 2015
Industrial Wastewater Monitoring	Industrial Wastewater Self-Monitoring Report (submitted to Sanitation Districts' Industrial Wastewater Section)	Quarterly and Semi-Annually

SCAQMD-South Coast Air Quality Management District
RWQCB-California Regional Water Quality Control Board, Los Angeles Region

In accordance with the work plan approved by DTSC on March 21, 2019 (Sanitation Districts, 2019), the scope of this five-year review includes an evaluation of groundwater, surface air, subsurface gas, storm water, and industrial waste water monitoring data collected during the review period (January 2014 through December 2018) to determine the effectiveness of the environmental control systems in meeting the remedial action objectives.

4. SITE INSPECTION

A site inspection was conducted for the third Five-Year Review on May 8, 2019. Dan Zogaib of DTSC conducted the inspection with Sanitation Districts' staff familiar with the site and its operation. The site inspection roster and inspection checklist are provided in Appendix A. The site inspection included physical examination of facilities at the Main Site, South Coast Botanic Garden, and Ernie Howlett Park.

The site inspection documentation, provided in Appendix A, describes the facilities and documents inspected and their condition and adequacy. The site inspection found facilities in good condition and O&M procedures and documentation appropriate for the operation of those facilities at the site.

5. O&M OVERVIEW AND COST SUMMARY

Review of O&M requirements, procedures, and costs is a component of the Five-Year Review process. A summary of O&M costs for the PVLF is presented in Table 2. These O&M expenditures ensure that all systems are operating as designed and functioning to control potential migration of landfill-related contaminants.

O&M activities related to groundwater, surface air, subsurface gas, storm water, and industrial wastewater activities are discussed in Section 6 of this review.

Table 2 - Summary of O&M Costs 2014-2018

Year	Total O&M Costs*
2014	$ 3,542,000
2015	$ 2,314,000
2016	$ 2,218,000
2017	$ 2,335,000
2018	$ 2,435,000

*All values rounded to the nearest $1,000

6. REMEDIAL SYSTEMS ASSESSMENT

Remedial facilities are in place at PVLF to contain or prevent the release of contaminants from the site. The remedial facilities and O&M are discussed for various media including groundwater, surface air, subsurface gas, storm water, and industrial wastewater in Sections

6.1 through 6.5, respectively. The media-specific data were analyzed in various ways to assess effectiveness.

Although storm water and industrial wastewater systems are not considered remedial systems, an assessment of these facilities is included in Sections 6.4 and 6.5, respectively.

6.1 GROUNDWATER

The PVLF was found to be the source of two plumes of groundwater contamination during the RI; one along Hawthorne Boulevard and a second along Crenshaw Boulevard. Although groundwater directly downgradient of the site is not in a designated groundwater basin (RWQCB, 1994) and its future use as a drinking water supply is unlikely due to limited aquifer thickness and naturally poor water quality, remedial measures were taken to ensure these groundwater plumes are contained at the site. The remedial measures included the installation of a groundwater containment system at the PVLF, which currently consists of a subsurface cement-bentonite barrier and 18 groundwater extraction wells (Figure 2). The system is monitored by a network of 32 groundwater monitoring wells (Figure 3). These wells provide coverage of groundwater flow paths from the site and additional coverage beyond the extent of contamination defined during the RI/FS. The objective of the groundwater monitoring program is to ensure these groundwater plumes are controlled by the groundwater containment system. Table 3 lists all of the existing monitoring wells by location.

Table 3 Current Groundwater Monitoring Program Wells

Onsite Near Crenshaw Blvd.	Offsite Near Crenshaw Blvd.	Onsite Near Hawthorne Blvd.	Offsite Near Hawthorne Blvd.	Onsite Near the Northeast Main Site Boundary	Offsite Near the Northeast Main Site Boundary	Background Upgradient
M38A	M36A	M06A	M26A	M30B	M66B	M56B
M39A	M37A	M06B	M49A	M33B	M67B	M58B
M53B	M69B	M07A	M51B	M35B		M60B
	M70B	M07B	M63B			M62B
	M71B	P410	M64B			
	M72B	P411	PV03			
	M52B					
	M59B					

Based on the results of the RI, a group of 12 VOCs and one metal was selected as being indicative of landfill-related contamination, referred to as constituents of concern (COCs). These COCs include benzene, chlorobenzene, methylene chloride, trichloroethylene (TCE), tetrachloroethylene (PCE), vinyl chloride, 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane

(1,2-DCA), 1,1-dichloroethylene (1,1-DCE), trans-1,2-dichloroethylene (trans-1,2-DCE), cis-1,2-dichloroethylene (cis-1,2-DCE), 1,2-dichloropropane, and arsenic (metal).

During the first Five-Year Review, an assessment of groundwater data indicated that arsenic, which was identified as a COC at the conclusion of the RI, is not related to the landfill but indicative of the groundwater chemistry and mobilization of naturally-occurring arsenic deposits. As such, the evaluation of groundwater data for the second and this third Five-Year Review is focused on VOCs that are found to be indicative of landfill containment.

Groundwater monitoring is conducted at the PVLF on a quarterly basis to assess containment system performance. The sampling parameters and frequency of analyses are presented in Table 4. Currently, groundwater samples collected in the first quarter of the calendar year are analyzed for an extensive list of water quality parameters including general mineral and physical parameters, metals, VOCs, SVOCs, and pesticides. In the remaining three quarters, groundwater samples are analyzed for general mineral and physical parameters and COCs identified in the RI.

Table 4 Groundwater Monitoring Parameters and Frequency

Parameter	Quarterly	Annually
General Physical And Mineral	X (Except Manganese)	X
Heavy Metals	Arsenic Only	X
Soluble Biological Oxygen Demand	X	X
Soluble Chemical Oxygen Demand	X	X
Total Organic Carbon	X	X
Hydrocarbons By EPA Method 8015	X	X
Volatile Organic Compounds	X	X
Semi Volatile Organic Compounds		X
Pesticides		X

In this third Five-Year Review, two criteria are used to evaluate potential trends in landfill-related VOC data:

- Summary Table Analysis
- Statistical Analysis

6.1.1 SUMMARY TABLE ANALYSIS

Water quality summary tables have been prepared to evaluate groundwater VOC data (see Appendix B). The data are divided into the first Five-Year Review (1987 through 2006), the second Five-Year Review (2007 through 2013), and the third Five-Year Review (2014 through 2018). A summary table has been prepared for each of the thirty-four VOCs plus 1,4-dioxane that are sampled/analyzed quarterly and/or annually in accordance with the groundwater monitoring program. Although 1,4-dioxane is a semi-volatile organic compound and was not monitored prior to second quarter 2002, it is an emerging compound that was added to the groundwater monitoring program at the request of DTSC. In this third Five-Year Review, 1,4-dioxane is included in the summary tables for evaluation as a landfill-related COC.

Tables B-1 through B-35 (Appendix B) list the number of samples analyzed with the minimum, maximum, and average results including the number of non-detects for each well. For averaging, ½ the detection limit was used for non-detected results. The percentage of samples in the third Five-Year Review period with concentrations greater than the maximum detection limit or the maximum concentrations detected in the second Five-Year Review period was calculated and listed in Tables B-1 through B-35 as “Criterion %”. As in the second Five-Year Review, a criterion percentage greater than 10 (evaluation criterion) indicates a possible increasing trend. Constituents that meet this criterion and were not already identified as a COC are flagged for further evaluation.

Seven of the thirty-five constituents evaluated met the 10 percent (10%) evaluation criterion. These include[1]: chlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, cis-1,2-DCE, trans-1,2-DCE, 1,4-dioxane, and vinyl chloride. Of the six COCs that met the 10% evaluation criterion, chlorobenzene and 1,4-dioxane are parent compounds while 1,2-dichloroethane, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride are daughter compounds. 1,4-dichlorobenzene, which has not been identified as a COC for the site, is also a daughter compound. As discussed extensively in the first Five-Year Review, many of the compounds identified as COCs at the PVLF are breakdown products of other parent compounds[2]. Accordingly, an increasing trend in a parent compound (i.e., chlorobenzene and 1,4-dioxane) in downgradient offsite wells is used as the criterion to evaluate the effectiveness of the site groundwater containment system.

During the third Five-Year Review period, one monitoring well located in the vicinity of Crenshaw Boulevard, had detections that met the criterion. As shown in Table 5, downgradient offsite monitoring well M70B met the 10% evaluation criterion for 1,4 dioxane.

[1] Benzene and toluene have also met the 10% evaluation criterion. However, as previously discussed in the first Five-Year Review, detections of BTEX compounds (benzene, toluene, ethylbenzene, and xylene) appear to be from a local source unrelated to the landfill and are therefore not flagged for further evaluation.

[2] Parent VOCs that have already been identified as one of the 12 COCs include benzene, chlorobenzene, methylene chloride, PCE, and 1,2-dichloropropane.

Table 5 Parent Compounds that Meet 10% Evaluation Criterion in Offsite Downgradient Wells

Constituent	Well	Location	Evaluation Criterion (Percent)
1,4-Dioxane	M70B	Downgradient/Crenshaw	18.2%

6.1.2 STATISTICAL ANALYSIS

The evaluation criterion used to further evaluate the effectiveness of the site groundwater containment system is the Mann Kendall Test for Trend (Gilbert, 1987). The Mann-Kendall Test for Trend is the statistical analysis method used to analyze groundwater quality to determine if the data exhibit any trends during the third Five-Year Review period. A significance level of 5% is used for the Mann Kendall Test for Trend statistical analysis. A minimum number of samples with constituent detections is necessary in order to uses this statistical trend method. If there are fewer than 10 total samples and if multiple sampling events occurred in a relatively short period of time (for the constituents with few samples), the trend analysis is not applicable. Similarly, if more than 50 percent of the sample results were non-detects, the trend analysis is not applicable.

The Mann Kendall Test for Trend was performed on the following parent compounds and the results are presented in Table 6.

- All five COC parent compounds including: benzene, chlorobenzene, methylene chloride, PCE, and 1,2-dichloropropane; and

- 1,4-dioxane, the additional parent compound that was added as a landfill-related COC at the request of DTSC.

The monitoring wells, listed in Table 6, have been grouped according to their location at the site as follows:

- Wells located offsite and downgradient in the vicinity of the Crenshaw Plume,
- Wells located offsite and downgradient in the vicinity of the Hawthorne Plume, and
- Wells located offsite near the northeast Main Site boundary (i.e. other offsite wells).

Table 6 Mann-Kendall Trend Analysis

Well	PARENT COMPOUND					OTHER PARENT COMPOUND
	Benzene	Chlorobenzene	Methylene Chloride	Tetrachloroethylene	1,2-Dichloropropane	1,4-Dioxane
Downgradient Offsite Crenshaw						
M36A	NA	NA	NA	--	NA	--
M37A	NA	NA	NA	D	NA	--
M69B	NA	--	NA	D	NA	--
M70B	NA	--	NA	D	NA	I
M71B	NA	NA	NA	NA	NA	NA
M72B	NA	NA	NA	--	NA	I
M52B	NA	NA	NA	NA	NA	NA
M59B	NA	NA	NA	NA	NA	NA
Downgradient Offsite Hawthorne						
M26A	NA	NA	NA	NA	NA	NA
M49A	NA	--	NA	NA	NA	D
M51B	NA	NA	NA	NA	NA	NA
M63B	NA	NA	NA	NA	NA	--
M64B	NA	NA	NA	NA	NA	NA
PV03	NA	NA	NA	NA	NA	--
Other Offsite Wells						
M66B	NA	NA	NA	NA	NA	NA
M67B	NA	NA	NA	NA	NA	NA

I - Increasing concentration trend D - Decreasing concentration trend "--" - No trend
Data represents recent trend from January 1, 2014 to December 31, 2018.
NA - More than 50 percent of samples are non-detect or less than 10 samples available for analysis.

6.1.2.1 CRENSHAW PLUME

During the third Five-Year Review period, offsite monitoring wells in the Crenshaw Plume area show no increasing trends for parent compounds except at wells M70B and M72B where increasing trends for 1,4-dioxane were found. At well M70B, 1,4 dioxane was detected between 10 µg/L and 25.5 µg/L during the third Five-Year Review period. At well M72B, 1,4 dioxane was detected at low levels between 2.2 µg/L and 3.7 µg/L with a minimum detection or detection limit of <0.4 µg/L and maximum detection or detection limit of <2 µg/L (see Table B-23 in Appendix B).

6.1.2.2 HAWTHORNE PLUME

During the third Five-Year Review period, no offsite monitoring wells in the Hawthorne Plume area showed increasing trends for parent compounds.

6.1.2.3 OTHER OFFSITE WELLS

Offsite monitoring wells M66B and M67B are located northeast of the Main Site between the Hawthorne and Crenshaw Plumes. No increasing trends were observed in these wells during the third Five-Year Review period.

6.1.3 GROUNDWATER CONCLUSIONS

As specified in Section 6.1, two criteria are used to evaluate trends in the water quality data. A potential increasing trend in an offsite downgradient monitoring well is indicated if both of the following criteria are met:

1. Criterion percentage for a detected parent compound is 10% or greater; and
2. The Mann-Kendall Test for Trend for the detected parent compound indicates an increasing trend

During the third Five-Year Review period, no VOCs detected in offsite downgradient wells met the criteria listed above except for 1,4-dioxane, which was detected at downgradient well M70B. 1,4-dioxane was detected at an elevated concentration compared to historical detections at well M70B during the third Five-Year Review period. The Sanitation Districts recognized this trend in First Quarter 2018 and proposed to install a new extraction well upgradient of M70B. As discussed in the well installation work plan submitted to DTSC on May 17, 2019, the Sanitation Districts will install a new extraction well in the eastern corner of the South Coast Botanic Garden, near existing extraction well E16, as a precautionary measure to prevent pollutant migration from the site. It is anticipated that this new extraction well will help mitigate the elevated 1,4-dioxane concentrations observed in wells M70B and M72B.

Overall, the data indicates that the remainder of groundwater containment system is functioning as intended in controlling the size and magnitude of the groundwater plumes. The groundwater directly downgradient of the site is not in a designated groundwater basin

(RWQCB, 1994) and its future use as a drinking water supply is unlikely due to limited aquifer thickness and naturally poor water quality. Nevertheless, the Sanitation Districts will continue to optimize operation and maintenance of the groundwater containment systems at the site to ensure ongoing control and containment of the groundwater plumes.

6.2 SURFACE AIR

Surface air monitoring at the PVLF is regulated primarily by the South Coast Air Quality Management District's (SCAQMD) Rule 1150.1. The specific requirements of Rule 1150.1 include: ambient air monitoring, integrated surface gas monitoring, wellhead pressure monitoring, landfill gas component leak testing, and flare emissions testing. Subsurface gas monitoring is also required and includes boundary probe monitoring and monitoring of the landfill gas header lines. The PVLF Rule 1150.1 Compliance Plan (amended April 1, 2011 and approved May 22, 2018) describes how the objectives of Rule 1150.1 are met at the site. This section of the third Five-Year Review describes surface air monitoring (i.e., ambient air monitoring, integrated surface gas monitoring, wellhead pressure monitoring, component leak testing, and combustion efficiency testing) at the site. Subsurface gas monitoring is described in Section 6.3.

6.2.1 AMBIENT AIR MONITORING

Ambient air monitoring samples are collected at two locations on the Main Site, one upwind representing background conditions and the other downwind representing potential landfill gas emissions (Figure 4). The samples are analyzed for TOC (as methane) and Toxic Air Contaminants (TACs) and the results used to assess potential landfill gas emissions in the ambient air. Monitoring takes place on a quarterly basis and is conducted during two consecutive 12-hour periods. The monitoring results are provided in quarterly and annual reports submitted to the SCAQMD and DTSC.

6.2.1.1 SAMPLING

Ambient air was sampled quarterly during the third Five-Year Review period (2014 through 2018). A total of forty 12-hour ambient air samples were collected from the upwind and downwind monitoring locations and the samples were analyzed for TACs and TOC (as methane). The 12-hour data were then combined to produce 24-hour averages. The combined 12-hour data resulted in twenty 24-hour averages, which were then compared to the second Five-Year Review data. The number of samples analyzed, concentration ranges and averages, and the number of non-detects for the second and third Five-Year Review periods are summarized in Table 7.

Table 7 Summary of Ambient Air Monitoring

Constituent	Second Five-Year Review[a]										Third Five-Year Review[a]									
	Upwind (24 Hour)[b]					Downwind (24 Hour)[b]					Upwind (24 Hour)[b]					Downwind (24 Hour)[b]				
	No. Analyzed	Min	Max	Avg[c]	No. ND	No. Analyzed	Min	Max	Avg[c]	No. ND	No. Analyzed	Min	Max	Avg[c]	No. ND	No. Analyzed	Min	Max	Avg[c]	No. ND
Methylene Chloride, ppbv	56	< 0.2	1.3	0.12	6	56	< 0.2	1.5	0.13	6	40	0.06	0.22	0.11	0	40	0.06	0.22	0.11	0
Chloroform, ppbv	56	< 0.02	0.15	0.05	2	56	< 0.02	0.15	0.03	5	40	< 0.04	0.18	0.07	10	40	< 0.04	0.08	0.03	22
1,1,1-Trichloroethane, ppbv	56	< 0.02	0.03	0.01	50	56	< 0.02	0.03	0.01	52	40	< 0.02	< 0.05	< 0.04	40	40	< 0.02	< 0.05	< 0.04	40
Carbon Tetrachloride, ppbv	56	0.07	0.12	0.09	0	56	0.08	0.12	0.09	0	40	0.08	0.1	0.09	0	40	0.08	0.1	0.09	0
1,1-Dichloroethene, ppbv	56	< 0.02	< 0.02	< 0.02	56	56	< 0.02	< 0.02	< 0.02	56	40	< 0.02	< 0.06	< 0.04	40	40	< 0.02	< 0.06	< 0.04	40
Trichloroethylene, ppbv	56	< 0.02	0.08	0.02	24	56	< 0.02	0.4	0.04	28	40	< 0.02	< 0.05	< 0.04	40	40	< 0.02	< 0.05	< 0.04	40
Tetrachloroethylene, ppbv	56	< 0.02	0.07	0.03	11	56	< 0.02	0.18	0.04	9	40	< 0.02	0.12	0.03	32	40	< 0.02	0.05	0.02	32
Chlorobenzene, ppbv	56	< 0.02	< 0.21	< 0.04	56	56	< 0.02	< 0.21	< 0.04	56	40	< 0.03	< 0.11	< 0.05	40	40	< 0.03	< 0.11	< 0.05	40
Vinyl Chloride, ppbv	56	< 0.02	< 0.02	< 0.02	56	56	< 0.02	< 0.02	< 0.02	56	40	< 0.02	< 0.1	< 0.05	40	40	< 0.02	< 0.1	< 0.05	40
1,1-Dichloroethane, ppbv	56	< 0.02	< 0.1	< 0.02	56	56	< 0.02	< 0.1	< 0.02	56	40	< 0.02	< 0.05	< 0.04	40	40	< 0.02	< 0.05	< 0.04	40
1,2-Dichloroethane, ppbv	56	< 0.02	0.04	0.02	43	56	< 0.02	0.14	0.02	45	40	< 0.03	0.03	0.02	37	40	< 0.03	0.03	0.02	38
Benzene, ppbv	56	< 0.07	0.5	0.16	10	56	< 0.07	0.47	0.16	11	40	< 0.07	0.39	0.13	8	40	< 0.07	0.35	0.13	9
Toluene, ppbv	56	< 0.06	1.3	0.36	3	56	< 0.06	1.4	0.37	1	40	< 0.06	0.64	0.20	6	40	< 0.1	0.62	0.22	5
Ethylbenzene, ppbv	56	< 0.02	0.22	0.06	14	56	< 0.02	0.19	0.06	13	40	< 0.04	0.13	0.04	27	40	< 0.04	0.12	0.05	27
Acetonitrile, ppbv	56	< 0.21	< 1	< 0.66	56	56	< 0.21	1.3	0.36	54	40	< 0.62	0.69	0.34	39	40	< 0.62	0.93	0.36	38
1,2-Dibromoethane, ppbv	56	< 0.02	< 1	< 0.09	56	56	< 0.02	< 1	< 0.09	56	40	< 0.02	< 0.11	< 0.05	40	40	< 0.02	< 0.11	< 0.05	40
Benzyl Chloride, ppbv	56	< 0.1	< 1	< 0.26	56	56	< 0.1	< 1	< 0.26	56	40	< 0.13	< 0.52	< 0.38	40	40	< 0.13	< 0.52	< 0.38	40
Xylene[d], ppbv	56	< 0.12	0.93	0.24	23	56	< 0.12	0.85	0.23	27	40	< 0.2	0.48	0.17	31	40	< 0.2	0.5	0.19	28
Dichlorobenzene[e], ppbv	56	< 0.06	0.06	0.16	51	56	< 0.06	0.03	0.16	52	40	< 0.27	< 1.59	< 0.81	40	40	< 0.27	< 1.59	< 0.81	40
TOC (as methane), ppmv	56	< 2	4.7	2.30	16	56	< 2	5.3	2.34	14	40	< 2	3.5	2.18	8	40	< 2	3.5	2.36	5

(a) Second Five-Year Review data collected quarterly March 2007 - October 2013; Third Five-Year Review data collected quarterly February 2014 - December 2018
(b) Combination of two consecutive 12-hour periods
(c) Used 1/2 detection limits to calculate average unless all results were detected or all were non-detected
(d) Xylene is total of m,p- and o-xylenes
(e) Dichlorobenzene is total of m-, o-, and p-dichlorobenzenes.
ppbv - parts per billion by volume; ppmv - parts per million by volume; Min - minimum; Max - maximum; Avg - average; ND - non-detect; "<" - less than detection limit; NA - constituent not analyzed
TOC (as methane) - total organic compounds as methane

6.2.1.2 SUMMARY TABLE ANALYSIS

In order to assess the continued effectiveness of the landfill gas collection system in controlling emissions, a comparison of upwind and downwind ambient air sampling results from the second Five-Year Review and the third Five-Year Review was made. Comparing the average concentration of TACs and TOC (as methane) detected during both review periods indicates that upwind and downwind sample results are comparable. For upwind samples, the average TAC concentrations are similar for the second and third Five-Year Review periods with the exception of chloroform and acetonitrile, which were detected during the third Five-Year Review. Although acetonitrile was detected in the third Five-Year Review at the upwind location, the average concentration was 0.34 ppbv, which is lower than the average detection limit during the second Five-Year Review. Chloroform was determined to be related to potable water (SCS, 2007) and is therefore not an indicator of potential landfill gas emissions at the site. The detection of TACs in upwind samples is indicative of background ambient air conditions and not of any potential landfill gas emissions.

When comparing downwind ambient air sampling results, the average TAC concentrations are similar for the second and third Five-Year Review periods. The TAC concentrations from the third Five-Year Review are in most instances slightly lower than those in the second Five-Year Review.

Average TOC (as methane) concentrations for both upwind and downwind locations are also similar with a slight increase in downwind TOC concentration found during the third Five-Year Review. The comparisons of upwind and downwind ambient air monitoring data indicate that ambient air is of equal or better quality than during the second Five-Year Review.

6.2.1.3 TAC PATTERN

Another measure of the potential effects of the landfill on ambient air is a comparison of the upwind and downwind TAC concentrations. Higher TAC concentrations downwind of the landfill as compared to upwind could indicate the possibility of ongoing landfill emissions. To further validate the conclusions drawn from the Summary Table Analysis, the Wilcoxon Rank Sum non-parametric test (WC) was used to determine if the upwind and downwind data were significantly different.

The WC is an analysis of variance based on the relative rank of each result. This procedure is unaffected by unequal variances and non-detected values, and is used when there are ties among all observations. Higher WC values indicate differences between data sets that are less likely due to random chance. A WC value corresponding to a probability of just one chance in twenty or less ($p \leq 0.05$) could indicate a difference that may not be explained by random chance. Table 8 shows the statistical comparison between upwind and downwind locations for TACs and TOC (as methane) in the third Five-Year Review. No constituents were determined to increase or decrease significantly between the upwind and downwind locations at the 0.05 significance level, except for chloroform, indicating that landfill emissions are well controlled at the site. As stated in the above Section 6.2.1.2, potable water was determined to be a source of chloroform at PVLF and is not indicative of potential landfill gas emissions.

Table 8 Wilcoxon Rank Sum Statistical Comparison

Compound	Comparison Statistics[a]	
	WC[b]	Significant at 0.05
Methylene Chloride, ppbv	-0.37	No
Chloroform, ppbv	3.99	Yes
1,1,1-Trichloroethane, ppbv	ND	ND
Carbon Tetrachloride, ppbv	-1.06	No
1,1-Dichloroethene, ppbv	ND	ND
Trichloroethylene, ppbv	ND	ND
Tetrachloroethylene, ppbv	-0.66	No
Chlorobenzene, ppbv	ND	ND
Vinyl Chloride, ppbv	ND	ND
1,1-Dichloroethane, ppbv	ND	ND
1,2-Dichloroethane, ppbv	0.37	No
Benzene, ppbv	-0.07	No
Toluene, ppbv	-0.39	No
Ethylbenzene, ppbv	-0.21	No
Acetonitrile, ppbv	-0.39	No
1,2-Dibromoethane, ppbv	ND	ND
Benzyl Chloride, ppbv	ND	ND
Xylene[c], ppbv	-0.58	No
Dichlorobenzene[c], ppbv	ND	ND
TOC as Methane, ppmv	-1.28	No

(a) Third Five-Year Review data collected quarterly (2014 to 2018) (20 sampling events)
(b) Wilcoxon Rank Sum non-parameteric test (WC). A WC value corresponding to a probability of just one chance in twenty ($p < 0.05$) provides some evidence that the difference may not be explained by random chance.
(c) Xylene is total of m- ,p- and o-xylenes; Dichlorobenzene is total of m-, o-, and p-dichlorobenzenes

Used 1/2 detection limits to calculate the mean; ND - indicates not detected
ppmv - parts per million by volume; ppbv - part per billion by volume

Methane is the primary constituent of concern in landfill gas and has been used as an indicator of landfill emissions by the SCAQMD and the USEPA. The previous analysis indicates that methane levels at upwind and downwind locations are not different and, as discussed in section 6.2.1.4 below, are consistent with background levels found in an urban environment. The lack of methane emissions also indicates that landfill gas emissions are well controlled at the site.

6.2.1.4 COMPARISON TO AMBIENT AIR BACKGROUND

Elevated TAC levels in site ambient air data above regional background ambient air levels could indicate potential emissions from the landfill. Background ambient air TAC levels from vehicular and stationary sources in the South Coast Air Basin were summarized by the SCAQMD in their Multiple Air Toxics Exposure Study (MATES-IV) (SCAQMD, May 2015). The study included air sampling at ten fixed sites, once every six days over a one-year period (July 2012 through June 2013). The regional air quality data results from the MATES-IV study can be compared with site ambient air monitoring results for the third Five-Year Review period to provide an indication of the effectiveness of landfill gas containment facilities.

Average annual values from the MATES-IV study for the 12 constituents common to the SCAQMD Rule 1150.1 Compliance Plan core group are presented in Table 9.

Table 9 - Background Ambient Air Comparison

Constituent	Palos Verdes Landfill Ambient Air[a]		South Coast Air Basin[c]
	Upwind (24 Hour)[b]	Downwind (24 Hour)[b]	
	Average[d]	Average[d]	Average[e]
Benzene, ppbv	0.13	0.13	0.38
Carbon Tetrachloride, ppbv	0.09	0.09	0.08
Chloroform, ppbv	0.07	0.03	0.04
Methylene Chloride, ppbv	0.11	0.11	0.55
p-Dichlorobenzene, ppbv	< 0.24	< 0.24	0.02
Tetrachloroethylene, ppbv	0.03	0.02	0.03
Trichloroethylene, ppbv	< 0.04	< 0.04	0.03
Vinyl Chloride, ppbv	< 0.05	< 0.05	< 0.05
Toluene, ppbv	0.20	0.22	1.06
Xylene, ppbv	0.18	0.20	0.87
1,2-Dibromoethane, ppbv	< 0.05	< 0.05	< 0.07
1,2-Dichloroethane, ppbv	0.02	0.02	0.01

(a) Third Five-Year Review ambient air data collected quarterly (2014 - 2018) (20 sampling events)
(b) Combination of two consecutive 12-hour periods
(c) South Coast Air Basin Data derived from MATES-IV Study Table VI-2 (SCAQMD, May 2015)
(d) Used 1/2 detection limits to calculate average unless all results were detected or all were non-detected.
(e) Used 1/2 method detection limits to calculate average for constituents below the limit of detection and reported as zero in MATES-IV.
ppbv - part per billion by volume; "<" - less than detection limit

During the third Five-Year Review period, upwind and downwind ambient air average concentrations were generally lower than the MATES-IV concentrations. However, the average upwind concentration for chloroform, and both upwind and downwind average concentrations for carbon tetrachloride and 1,2-dichloroethane were slightly greater than their respective MATES-IV average concentrations. In addition, neither p-dichlorobenzene nor trichloroethylene (TCE) was detected in upwind or downwind samples during the third Five-Year Review period but were detected in the MATES-IV data at lower average detection limits than used in the third Five-Year Review period.

As previously shown, upwind and downwind concentrations for these compounds other than chloroform are not statistically different. The higher average upwind concentration of chloroform is indicative of background ambient air conditions and not of any potential landfill gas emissions. Furthermore, chloroform was determined to be related to potable water (SCS, 2007) and is therefore not an indicator of potential landfill gas emissions at the site. This comparison shows no unusual TAC levels, and upwind and downwind site concentrations are typically lower than South Coast Air Basin regional levels.

6.2.2. INTEGRATED SURFACE GAS MONITORING

Integrated surface gas monitoring is conducted quarterly at the Main Site and South Coast Botanic Garden in compliance with the SCAQMD Rule 1150.1 Compliance Plan. Samples are collected from two hundred and seven, 50,000 square-foot monitoring grids that cover the entire landfill surface area (Figure 5). Within each grid a composite sample is collected using a Toxic Vapor Analyzer or other approved instrument while traversing the grid in a systematic pattern. All of the collected samples are analyzed for TOC (as methane) and a subset from select grids is also analyzed for TACs. Additionally, TOC (as methane) is measured quarterly in surface gas samples concurrent with TAC analysis. These TOC (as methane) results are used as an additional check for potential surface gas emissions.

From April 2000 to June 2011, the SCAQMD Rule 1150.1 action level for TOC (as methane) in integrated surface gas samples was 50 parts per million by volume (ppmv). The SCAQMD amended Rule 1150.1 on April 1, 2011 and revised the action level to 25 parts per million by volume (ppmv). The revised action level became effective as of July 1, 2011. Currently, if integrated surface gas TOC (as methane) concentrations exceed 25 ppmv, corrective actions are taken to control emissions from the affected area(s) within the timelines specified in the SCAQMD Rule 1150.1 Compliance Plan. Integrated surface gas monitoring results and a description of corrective actions implemented, are included in quarterly and annual reports provided to the SCAQMD and DTSC.

Ernie Howlett Park does not have an active gas collection system and monitoring for evidence of surface gas emissions is not required. The Sanitation Districts do not own or operate Ernie Howlett Park[3] and the SCAQMD Rule 1150.1 Compliance Plan issued to the Sanitation Districts does not apply to the park (SCAQMD, 2000).

[3] The park is owned and operated by the City of Rolling Hills Estates.

6.2.2.1 Sampling

During the third Five-Year Review period, approximately 2,800 samples from the Main Site and 1,300 samples from the South Coast Botanic Garden were analyzed for TOC (as methane). In addition, 25 samples from the Main Site and 15 samples from the South Coast Botanic Garden were analyzed for TACs.

The number of samples analyzed, concentration ranges and averages, and the number of non-detects for the second and third Five-Year Review periods are presented in Table 10 for the Main Site and South Coast Botanic Garden. Data are also summarized for comparison to SCAQMD Rule 1150.1 Compliance Plan criteria.

6.2.2.2 Summary Table Analysis

The SCAQMD Rule 1150.1 Compliance Plan TOC (as methane) action level is 25 ppmv for integrated surface gas samples collected since the third quarter of 2011 and 50 ppmv for samples collected between July 1994 and June 2011. During the third Five-Year Review period (2014 to 2018), the maximum TOC (as methane) concentration detected at the Main Site was 10.2 ppmv, which is well below the TOC (as methane) action level of 25 ppmv. During the same period, the South Coast Botanic Garden had one TOC (as methane) detection above the 25 ppmv action level at a concentration of 35.2 ppmv. However, corrective actions were implemented and TOC (as methane) concentrations returned to background ambient air levels within 10 days after performing maintenance to the landfill cover in accordance with SCAQMD Rule 1150.1 Compliance Plan requirements.

For comparison purposes, during the second Five-Year Review period (2007 to 2013), the maximum TOC (as methane) concentration detected at the Main Site was 13.8 ppmv (below the 25 ppmv action level), and the South Coast Botanic Garden had two TOC (as methane) detections above the 25 ppmv action level at concentrations of 72 ppmv and 123.9 ppmv, which triggered the implementation of corrective actions to restore the area to background ambient air levels. The maximum TOC (as methane) concentrations at the Main Site and South Coast Botanic Garden detected during the third Five-Year Review are lower than the maximum levels detected during the second Five-Year Review period. This is an indication of the continued effectiveness of the environmental control systems in controlling potential landfill gas emissions.

The comparison of integrated surface gas data from both Five-Year Review periods to the SCAQMD Rule 1150.1 Compliance Plan criteria further indicates that landfill gas emissions are well controlled at the site. It should be noted that the Sanitation Districts are in compliance with SCAQMD Rule 1150.1 Compliance Plan integrated surface gas criteria.

Table 10 Summary of Integrated Surface Gas Monitoring

Constituent	Second Five-Year Review[a]										Third Five-Year Review[a]									
	Main Site[c]					South Coast Botanic Garden[c]					Main Site[c]					South Coast Botanic Garden[c]				
	No. Analyzed	Min	Max	Avg	Criterion %[d]	No. Analyzed	Min	Max	Avg	Criterion %[d]	No. Analyzed	Min	Max	Avg	Criterion %[d]	No. Analyzed	Min	Max	Avg	Criterion %[d]
TOC (as methane), ppmv	3,976	0.7	13.8	2.3	0	1,820	1.1	123.9	3.0	0	2,840	0.1	10.2	2.2	0	1,300	0.18	35.2	2.6	0
Constituent	**Second Five Year Review[b]**										**Third Five Year Review[b]**									
	Main Site[c]					**South Coast Botanic Garden[c]**					**Main Site[c]**					**South Coast Botanic Garden[c]**				
	No. Analyzed	**Min**	**Max**	**Avg[e]**	**No. ND**	**No. Analyzed**	**Min**	**Max**	**Avg[e]**	**No. ND**	**No. Analyzed**	**Min**	**Max**	**Avg[e]**	**No. ND**	**No. Analyzed**	**Min**	**Max**	**Avg[e]**	**No. ND**
Methylene Chloride, ppbv	38	< 0.2	0.33	0.13	4	20	< 0.2	3	0.24	1	22	0.07	3.3	0.15	0	15	0.07	0.29	0.18	0
Chloroform, ppbv	38	< 0.02	0.08	0.03	5	20	< 0.02	0.08	0.03	2	25	< 0.04	0.08	0.04	10	15	< 0.04	0.08	0.04	3
1,1,1-Trichloroethane, ppbv	38	< 0.02	0.05	0.02	25	20	< 0.02	0.03	0.01	16	25	< 0.02	0.02	0.02	22	15	< 0.02	0.02	0.02	14
Carbon Tetrachloride, ppbv	38	0.07	0.12	0.09	0	20	0.08	0.11	0.09	0	25	0.08	0.09	0.09	0	15	0.08	0.09	0.09	0
1,1-Dichloroethene, ppbv	38	< 0.02	< 0.02	< 0.02	38	20	< 0.02	< 0.02	< 0.02	20	25	< 0.02	< 0.06	< 0.04	25	15	< 0.02	< 0.06	< 0.04	15
Trichloroethylene, ppbv	38	< 0.02	0.21	0.06	4	20	< 0.02	0.12	0.05	1	25	< 0.02	0.11	0.03	23	15	< 0.02	< 0.05	< 0.04	15
Tetrachloroethylene, ppbv	38	0.02	0.16	0.07	0	20	0.02	0.27	0.06	0	25	< 0.02	0.19	0.06	7	15	< 0.02	0.19	0.07	3
Chlorobenzene, ppbv	38	< 0.02	0.02	0.02	37	20	< 0.02	< 0.21	< 0.05	20	25	< 0.04	< 0.11	< 0.05	25	15	< 0.04	0.04	0.03	14
Vinyl Chloride, ppbv	38	< 0.02	< 0.02	< 0.02	38	20	< 0.02	< 0.02	< 0.02	20	25	< 0.02	< 0.1	< 0.04	25	15	< 0.02	< 0.1	< 0.04	15
1,1-Dichloroethane, ppbv	38	< 0.02	< 0.1	< 0.02	38	20	< 0.02	< 0.1	< 0.02	20	25	< 0.02	< 0.05	< 0.04	25	15	< 0.02	< 0.05	< 0.04	15
1,2-Dichloroethane, ppbv	38	< 0.1	< 0.11	< 0.10	38	20	< 0.1	< 0.11	< 0.10	20	25	< 0.05	< 0.1	< 0.10	25	15	< 0.05	< 0.1	< 0.10	15
Benzene, ppbv	38	0.11	0.79	0.30	0	20	< 0.1	0.79	0.26	3	25	< 0.1	0.61	0.28	2	15	< 0.1	0.61	0.30	2
Toluene, ppbv	38	< 0.42	2.1	0.71	13	20	< 0.42	2.1	0.74	8	25	< 0.42	1.5	0.54	11	15	< 0.42	1.5	0.59	6
Ethylbenzene, ppbv	38	< 0.1	0.3	0.11	21	20	< 0.08	0.33	0.10	13	25	< 0.09	0.27	0.09	14	15	< 0.09	0.27	0.11	7
Acetonitrile, ppbv	38	< 0.17	< 1	< 0.65	38	20	< 0.42	< 0.66	< 0.65	20	25	< 0.62	< 0.66	< 0.66	25	15	< 0.62	< 0.66	< 0.66	15
1,2-Dibromoethane, ppbv	38	< 0.02	< 0.21	< 0.06	38	20	< 0.02	< 1	< 0.11	20	25	< 0.02	< 0.11	< 0.05	25	15	< 0.02	< 0.11	< 0.04	15
Benzyl Chloride, ppbv	38	< 0.1	< 0.42	< 0.22	38	20	< 0.1	< 1	< 0.25	20	25	< 0.13	< 0.52	< 0.38	25	15	< 0.13	< 0.52	< 0.38	15
Xylene[f], ppbv	38	< 0.49	1.32	0.45	25	20	< 0.49	1.51	0.52	14	25	< 0.63	1.14	0.40	19	15	< 0.63	1.14	0.45	12
Dichlorobenzene[f], ppbv	38	< 0.16	< 1.05	< 0.53	38	20	< 0.16	< 1.05	< 0.56	20	25	< 0.44	< 1.34	< 0.72	25	15	< 0.44	< 1.34	< 0.82	15
TOC (as methane), ppmv	38	< 2	3.2	2.30	3	20	< 2	3.9	2.55	1	25	< 2	3.7	2.56	2	15	< 2	3.7	2.75	1

(a) Second Five-Year Review TOC (as methane) data Grids: quarterly 1stQ 2007 - 4thQ 2013; Third Five-Year Review TOC (as methane) data Grids: quarterly 1stQ 2014 - 4thQ 2018
(b) Second Five-Year Review TAC data Select Grids: quarterly 1stQ 2007 - 4thQ 2013; Third Five-Year Review TAC data Select Grids: quarterly 1stQ 2014 - 4thQ 2018
(c) Main Site: Grids 1-137, PP-A to PP-E; South Coast Botanic Garden: Grids 138-200, PP-F and PP-G
(d) Percent at criteria is number of action level detections not corrected pursuant SCAQMD Compliance Plan criteria
(e) Used 1/2 detection limits to calculate average or median unless all results were detected or all were non-detected
(f) Xylene is total of m,p- and o-xylenes; Dichlorobenzene is total of m-, o-, and p-dichlorobenzenes
ppmv - parts per million by volume; ppbv - part per billion by volume; Min - minimum; Max - maximum; Avg - average; "<" - less than detection limit

A comparison of second Five-Year Review and third Five-Year Review integrated surface gas TAC concentrations is useful to determine changes in the composition of surface gas and to identify TAC patterns indicative of landfill gas emissions. For the Main Site, the average concentrations of TACs detected during the third Five-Year Review period were all comparable to the concentrations of TACs detected during second Five-Year Review except for methylene chloride. The average concentration for methylene chloride was slightly higher in the third Five-Year Review period when compared to the second Five-Year Review period. The elevated average for methylene chloride can be attributed to the detection of methylene chloride in a sample taken in February 2016 that is an apparent data set outlier. A modified Z-score statistical technique was used to determine whether the February 2016 methylene chloride concentration was an outlier of the data set. A review of the modified Z-score results for methylene chloride confirmed the February 2016 concentration was an outlier. This outlier was subsequently removed from the data set and was not included in calculation of the average but was included in the concentration range. The resultant average concentration for methylene chloride was comparable to the average concentration found during the second Five-Year Review period.

Comparisons of the average concentrations of TACs detected at the South Coast Botanic Garden during the third Five-Year Review were nearly equal or better than during the second Five-Year Review period.

In addition, integrated surface gas TAC results were reviewed to determine whether a pattern indicative of landfill gas exists. Integrated surface gas samples are analyzed according to SCAQMD Rule 1150.1 compliance plan. Concentrations of nineteen TACs are presented in Table 10, seventeen of which are TACs in the SCAQMD Rule 1150.1 core group that represents landfill gas compounds of concern to regulatory agencies relative to public health (Sanitation Districts, 2003). The TAC concentrations detected during the second and third Five-Year Review periods are substantially lower than levels typically found in landfill gas. Additionally, for those compounds which are characteristic of landfill gas, the average concentrations do not show a pattern indicative of landfill gas emissions.

6.2.2.3 COMPARISON TO AMBIENT AIR BACKGROUND

Integrated surface gas TAC concentrations above regional background ambient levels could indicate potential landfill gas emissions. Background ambient air TAC levels from vehicular and stationary sources in the South Coast Air Basin were summarized by SCAQMD in their Multiple Air Toxics Exposure Study (MATES-IV) (SCAQMD, May 2015). The MATES-IV study included air sampling at ten fixed sites once every six days for a one-year period (July 2012 through June 2013). The regional air quality data results from the MATES-IV program can be compared with site integrated surface gas monitoring results to provide an indication of the effectiveness of landfill gas containment facilities.

Average annual values from the MATES-IV study for the 12 constituents common to the SCAQMD Rule 1150.1 Compliance Plan core group are presented in Table 11. Average TAC concentrations in integrated surface gas are generally comparable with the MATES-IV average concentrations and most compounds are lower. The comparison of integrated surface gas average TAC concentrations with the MATES-IV regional ambient air data illustrates the effectiveness of the PVLF environmental control systems in controlling surface gas emissions.

Table 11 Background Ambient Air Comparison to Integrated Surface Gas

Constituent	Palos Verdes Landfill Integrated Surface Gas[(a)] Main Site	Palos Verdes Landfill Integrated Surface Gas[(a)] South Coast Botanic Garden	South Coast Air Basin[(b)]
	Average[(c)]	Average[(c)]	Average[(d)]
Benzene, ppbv	0.28	0.30	0.38
Carbon Tetrachloride, ppbv	0.09	0.09	0.08
Chloroform, ppbv	0.04	0.04	0.04
Methylene Chloride, ppbv	0.15	0.18	0.55
p-Dichlorobenzene, ppbv	< 0.25	< 0.27	0.02
Tetrachloroethylene, ppbv	0.06	0.07	0.03
Trichloroethylene, ppbv	0.03	< 0.04	0.03
Vinyl Chloride, ppbv	< 0.04	< 0.04	< 0.05
Toluene, ppbv	0.54	0.59	1.06
Xylene, ppbv	0.40	0.45	0.87
1,2-Dibromoethane, ppbv	< 0.05	< 0.04	< 0.07
1,2-Dichloroethane, ppbv	< 0.10	< 0.10	0.01

(a) Integrated surface gas TAC data Select Grids: quarterly 1stQ 2014 - 4thQ 2018
(b) South Coast Air Basin Data derived from MATES-IV Study Table VI-2 (SCAQMD, May 2015)
(c) Used 1/2 detection limits to calculate average unless all results were detected or all were non-detected.
(d) Used 1/2 method detection limits to calculate average for constituents below the limit of detection and reported as zero in MATES-IV.
ppbv - part per billion by volume; "<" - less than detection limit

6.2.3 WELLHEAD PRESSURE MONITORING

Wellhead pressure monitoring is conducted at each landfill gas collector located at the Main Site and South Coast Botanic Garden in compliance with the SCAQMD Rule 1150.1 Compliance Plan. SCAQMD amended Rule 1150.1 on April 1, 2011 to incorporate requirements from the California Air Resources Board (CARB) Rule and added wellhead pressure monitoring. The amended requirements became effective after July 1, 2011. Monitoring is conducted by measuring the gauge pressure at the wellhead of each active gas collector (Figure 8) on a monthly basis. If a positive pressure reading is measured at the wellhead under normal operating conditions, actions are taken to restore vacuum (negative pressure) to the gas collector within the timelines specified in the SCAQMD Rule 1150.1 Compliance Plan. Wellhead pressure results, as well as any corrective actions that were implemented, are included in quarterly and annual reports submitted to the SCAQMD and DTSC.

The gas collection system consists of vertical gas collection wells and horizontal gas trenches (gas collectors) installed throughout the landfill. These wells and trenches are connected through a network of header line pipes, and a vacuum is applied to create a negative pressure gradient around each gas collector. The landfill gas is drawn from the refuse into the collection system thereby controlling potential surface air emissions. Currently, there are 463 active gas collection wells at the site including approximately 4,210 linear feet of gas collection trenches. There are a total of 390 active gas collectors on the Main Site and 73 active gas collectors on the South Coast Botanic Garden.

The collected landfill gas is combusted in the ultra-low emission (ULE) flare located in the northwest corner of the Main Site alongside Hawthorne Boulevard. The ULE flare began operation in October 2011. Flare Station No. 2 (Figure 6), which consists of six flares, serves as a backup facility when the ULE flare is undergoing maintenance. A Gas-to-Energy facility located in the northwest corner of the Main Site alongside Hawthorne Boulevard operated from 1988 to 2011. Operation was discontinued due to declining landfill gas production at the site and the Gas-to-Energy facility was decommissioned in October 2011.

6.2.3.1 SAMPLING

As described above, compliance with the SCAQMD Rule 1150.1 wellhead pressure monitoring was not required at the PVLF prior to July 1, 2011. However, the Sanitation Districts had already implemented monitoring of wellhead pressures at the site as part of the on-going gas collection and control system operation and maintenance program. Landfill technicians inspect the gas collection and control system apparatus on a routine basis. The monitoring of gas header lines and gas collectors for flowrate, gauge pressure, oxygen concentration, methane concentration, and temperature is performed on a minimum monthly basis. When problems are identified, operational adjustments or repairs are made to restore normal operating conditions. The sampling protocol utilized to collect wellhead pressure data for the maintenance program is similar to the current SCAQMD Rule 1150.1 Compliance Plan sampling protocol for wellhead pressure monitoring so the data can be used in comparisons.

Over 23,300 wellhead pressure readings were taken at the Main Site gas collectors and over 4,400 wellhead pressure readings were taken at the South Coast Botanic Garden gas collectors during the third Five-Year Review period (2014 to 2018). The number of wellhead pressure readings taken and the pressure ranges and averages during the second and third Five-Year Review periods are presented in Table 12.

6.2.3.2 SUMMARY TABLE ANALYSIS

There were four (4) positive pressure readings at the Main Site wellheads and two (2) positive pressure readings at the South Coast Botanic Garden wellheads during the third Five-Year Review period. Each positive pressure reading triggered the implementation of corrective actions necessary to restore vacuum (negative pressure) to the gas collector within 5 days, as specified in the SCAQMD Rule 1150.1 Compliance Plan. By comparison, during the second Five-Year Review period (2007 to 2013), there were 63 positive pressure readings measured at the Main Site wellheads and 11 positive pressure readings measured at the South Coast Botanic Garden wellheads. These positive pressure wellhead levels returned to negative pressure (vacuum) after performing operational adjustments to the collectors.

Table 12 Wellhead Pressure Monitoring Summary

Period	Gauge Pressure, iwc									
	Main Site					South Coast Botanic Garden				
	No. Analyzed	Min	Max	Avg	Criterion %(d)	No. Analyzed	Min	Max	Avg	Criterion %(c)
Second Five-Year Review(a)	35,123	-69	1	-9.8	0	6,892	-15	0.01	-0.9	0
Third Five-Year Review(b)	23,341	-83	0.2	-7.6	0	4,412	-8.5	0.25	-0.7	0

(a) Second Five-Year Review data: monthly January 2007 - December 2013
(b) Third Five-Year Review data: monthly January 2014 - December 2018
(c) Criterion percent is number of action level detections not corrected pursuant SCAQMD Compliance Plan time frame requirements
Min = vacuum; Max = positive pressure; Avg = average

The decline in positive pressure wellhead readings from the second Five-Year Review to the third Five-Year Review is an indication of the effectiveness of the landfill gas collection system and decline in landfill gas production. It should be noted that the Sanitation Districts are in compliance with SCAQMD Rule 1150.1 Compliance Plan criteria regarding wellhead monitoring as indicated in the "Criterion %" column in Table 12. Compliance with the wellhead monitoring criteria ensures effective gas collection system performance and control of landfill gas emissions.

6.2.4 Component Leak Check Monitoring

On April 1, 2011, the SCAQMD amended Rule 1150.1 to incorporate requirements from California Air Resources Board (CARB) Rule. The amended rule requires that all landfill gas control components under positive pressure be monitored for methane leaks on a quarterly basis. The amended requirements became effective after July 1, 2011.

6.2.4.1 Sampling

In accordance with the SCAQMD Rule 1150.1 Compliance Plan, component leak check monitoring of landfill gas control components (under positive pressure) began after July 1, 2011, and quarterly monitoring was initiated in the third quarter of 2011. Component leak check monitoring of the boilers was not required since decommissioning of the Gas-to-Energy Facility was scheduled to occur in October 2011. Approximately 36,095 leak check monitoring samples were collected from flare components under positive pressure during the third Five-Year Review period and analyzed for TOC (as methane) in compliance with SCAQMD Rule 1150.1 Compliance Plan criteria. Any exceedances are documented in quarterly and annual reports submitted to the SCAQMD and DTSC.

6.2.4.2 SUMMARY TABLE ANALYSIS

The SCAQMD Rule 1150.1 Compliance Plan component leak check requirement specifies a TOC (as methane) action level of 500 ppmv for gas control components under positive pressure. During the third Five-Year Review period methane detections at or above the action level occurred a total of 14 times, or in approximately 0.04 percent of the total number of samples collected (Table 13). By comparison, during the second Five-Year Review period the number of methane detections at or above the action level occurred a total of 16 times, or in approximately 0.10 percent of the total number of samples collected. Each detection above the action level triggered the implementation of corrective actions to repair the leak and return methane levels to below the SCAQMD Rule 1150.1 Compliance Plan action level within 10 days. It should be noted that the Sanitation Districts are in compliance with SCAQMD Rule 1150.1 Compliance Plan criteria regarding component leak check monitoring as indicated in the "Criterion %" column in Table 13. Compliance with the leak check monitoring criteria ensures enhanced gas collection system performance and the effective control of surface gas emissions.

Table 13 Component Leak Check Summary

Flares[a]				
Period	**No. Analyzed**	**No. of Detections**	**Percent of Total Samples Detected**	**Criterion %[b]**
Second Five-Year Review[c]	24,050	16	0.10%	0
Third Five-Year Review[d]	36,095	14	0.04%	0

(a) Gas treatment Ultra-low Emissions (ULE) flare and Flare Station No. 2
(b) Criterion percent is number of action level detections not corrected pursuant SCAQMD Compliance Plan time frame requirements
(c) Second Five-Year Review data: monthly January 2007 - December 2013
(d) Third Five-Year Review data: monthly January 2014 - December 2018

6.2.5 FLARE EMISSIONS TESTING

The destruction efficiency of the landfill gas control devices (i.e., flares) is monitored in compliance with the SCAQMD Rule 1150.1 Compliance Plan. Collected landfill gas is currently combusted in an ULE flare. Flare Station No. 2, which consists of six flares, serves as a backup facility for the combustion of landfill gas when the ULE flare is undergoing maintenance. Source tests are conducted annually for the ULE flare to assess the destruction efficiency in compliance with the SCAQMD Rule 1150.1 Compliance Plan. Each of the six backup flares is also source tested with one backup flare being tested each year on a rotating basis. The locations of the ULE flare and Flare Station No. 2 are shown in Figure 6.

Prior to October 2011, collected landfill gas was combusted in the PVLF Gas-to-Energy facility located in the northwest corner of the Main Site alongside Hawthorne Boulevard. Flare Station No. 2 served as a backup facility for the combustion of landfill gas when the Gas-to-Energy Facility was undergoing maintenance. The Gas-to-Energy Facility began operation in December 1988. Landfill gas was combusted in one of two landfill gas-fired boilers to produce steam, which in turn was used to power a steam turbine to produce electricity. The electricity produced was sold to Southern California Edison (SCE) for use in the local power grid network. In 2011, the average net power output from the facility was 2.1 megawatts (MW). As described in Section 6.2.3, due to the decline in landfill gas production at the site, the Sanitation Districts decommissioned the Gas-to-Energy facility in October 2011 and replaced it with an ultra-low emission (ULE) flare.

As of 2018, the composition of landfill gas delivered to the ULE flare was approximately (by volume) 10 percent methane, 10 percent carbon dioxide, 13 percent oxygen, and 65 percent nitrogen, with trace levels of VOCs. VOCs are destroyed through combustion, in the gas control facilities (i.e., flares).

Between November 2000 and March 2011, compliance with the SCAQMD Rule 1150.1 Compliance Plan for gas control facilities was demonstrated by achieving less than 20 parts per million by volume (ppmv) or greater than 98 percent (98%) by weight destruction efficiency for total non-methane hydrocarbon. SCAQMD amended Rule 1150.1 in April 2011 to incorporate requirements from the California Air Resources Board (CARB) Rule and revised the criteria to include a destruction efficiency of at least 99 percent (99%) by weight for methane.

6.2.5.1 SAMPLING

During the third Five-Year Review period 30 source test samples were collected from the flares. The number of source test samples analyzed, concentration ranges and averages, and the number of non-detects for the second and third Five-Year Review periods are presented in Table 14. Note, boiler test results are summarized for the second Five-Year Review period but are excluded from comparisons in this Review since the Gas-to-Energy facility was decommissioned in October 2011. Any exceedances of regulated parameters are documented in quarterly and annual reports submitted to the SCAQMD and DTSC.

Table 14 Summary of Flare and Boiler Exhaust Gas Sampling

Constituent	Second Five-Year Review[a]										Third Five-Year Review[a]				
	Flares[b]					Boiler[c]					Flares[b]				
	No. Analyzed	Min	Max	Avg[e]	No. ND	No. Analyzed	Min	Max	Avg[e]	No. ND	No. Analyzed	Min	Max	Avg[e]	No. ND
Methylene Chloride, ppbv	40	< 0.05	0.63	0.07	35	15	< 0.05	0.06	0.08	10	30	< 0.1	0.11	0.07	26
Chloroform, ppbv	40	< 0.05	0.07	0.03	39	15	< 0.05	< 0.06	< 0.05	15	30	< 0.1	< 0.14	< 0.11	30
1,1,1-Trichloroethane, ppbv	40	< 0.05	< 0.05	< 0.05	40	15	< 0.05	< 0.06	< 0.05	15	30	< 0.1	< 0.14	< 0.11	30
Carbon Tetrachloride, ppbv	40	< 0.05	0.05	0.03	39	15	< 0.05	< 0.06	< 0.05	15	30	< 0.1	< 0.14	< 0.12	30
1,1-Dichloroethene, ppbv	40	< 0.05	0.1	0.03	37	15	< 0.05	< 0.06	< 0.05	15	30	< 0.1	< 0.14	< 0.12	30
Trichloroethylene, ppbv	40	< 0.05	0.06	0.03	39	15	< 0.05	< 0.06	< 0.05	15	30	< 0.1	< 0.13	< 0.11	30
Tetrachloroethylene, ppbv	40	< 0.05	0.08	0.04	37	15	< 0.05	< 0.06	< 0.05	15	30	< 0.1	< 0.13	< 0.11	30
Chlorobenzene, ppbv	40	< 0.05	11	0.66	34	15	< 0.05	< 0.26	< 0.09	15	30	< 0.1	1.2	0.16	24
Vinyl Chloride, ppbv	40	< 0.05	3.7	0.28	34	15	< 0.05	< 0.06	< 0.05	15	30	< 0.09	0.24	0.07	28
1,1-Dichloroethane, ppbv	40	< 0.05	< 0.25	< 0.10	40	15	< 0.05	< 0.06	< 0.05	15	30	< 0.1	< 0.13	< 0.11	30
1,2-Dichloroethane, ppbv	40	< 0.05	0.08	0.05	38	15	< 0.05	< 0.25	< 0.10	15	30	< 0.1	< 0.13	< 0.11	30
Benzene, ppbv	40	< 0.07	89	4.00	23	15	< 0.07	0.31	0.17	5	30	< 0.18	11	1.05	21
Toluene, ppbv	40	< 0.11	15	0.86	17	15	< 0.28	1.9	0.69	4	30	< 0.15	2.5	0.40	17
Ethylbenzene, ppbv	40	< 0.05	9.1	0.55	29	15	< 0.05	0.47	0.14	5	30	< 0.1	1.8	0.18	26
Methyl tert butyl Ether, ppbv	40	< 0.1	< 0.24	< 0.18	40	15	< 0.1	< 0.55	< 0.19	15	30	< 0.23	< 1.2	< 0.54	30
Acetonitrile, ppbv	40	< 1.6	4	0.91	39	15	< 1.7	< 1.7	< 1.70	15	30	< 1.5	2.4	0.87	28
Freon 11 (CCL3F), ppbv	40	< 0.05	0.14	0.03	33	15	< 0.05	0.19	0.05	11	30	< 0.09	0.17	0.07	25
1,2-Dibromoethane, ppbv	40	< 0.05	< 2.6	< 0.23	40	15	< 0.05	< 0.52	< 0.19	15	30	< 0.1	< 0.14	< 0.11	30
1,3-Butadiene , ppbv	40	< 0.09	36	1.46	36	15	< 0.08	0.09	0.05	14	30	< 0.24	3.3	0.28	27
cis-1,2-Dichloroethylene, ppbv	40	< 0.05	4.3	0.33	35	15	< 0.05	< 0.06	< 0.05	15	30	< 0.1	0.24	0.07	27
Benzyl Chloride, ppbv	40	< 0.31	< 2.6	< 0.62	40	15	< 0.5	< 1	< 0.61	15	30	< 0.44	< 1.3	< 1.01	30
Xylene[d], ppbv	40	< 0.2	5.9	0.60	32	15	< 0.2	1.82	0.65	7	30	< 0.5	0.97	0.36	27
Dichlorobenzene[d], ppbv	40	< 0.16	5.61	0.77	36	15	< 0.16	< 2.52	< 0.81	15	30	< 0.66	< 4.08	< 2.41	30

(a) Second Five-Year Review data: flares June 2007 - November 2013; boiler June 2007 - March 2011; Third Five-Year Review data: flares January 2014 - December 2018
(b) Gas treatment flares at the Ultra-low Emission (ULE) flare and Flare Station No. 2
(c) Gas-to-Energy facility combustion boiler 501. The Gas-to-Energy facility was decommissioned in October 2011.
(d) Xylene is total of m, p, and o-xylenes; Dichlorobenzene is total of m, o, and p-dichlorobenzenes
(e) Used 1/2 detection limits to calculate average unless all results were detected or all were non-detected
ppmv - parts per million by volume; ppbv - part per billion by volume; Min - minimum; Max - maximum; Avg - average; "<" - less than detection limit; NA - constituent not analyzed

6.2.5.2 Combustion Efficiency Review

Flare emissions test data for samples collected since 2007 were reviewed for compliance with the SCAQMD Rule 1150.1 Compliance Plan requirements. In all cases, the average destruction efficiencies achieved a total non-methane hydrocarbon concentration of less than 20 ppmv or were determined to be greater than 98% for total non-methane hydrocarbons in accordance with SCAQMD Rule 1150.1 Compliance Plan limits. For the period starting November 2011, flare emissions were also tested for methane destruction efficiencies and were determined to be greater than 99% for all emission tests except one performed on a backup flare during the second Five-Year Review period in November 2011. The methane destruction efficiency for this backup flare measured 96 percent as determined by the source test results. However, after performing maintenance to the flare and re-testing the emissions, the methane destruction efficiency was confirmed to be greater than 99%. It should be noted that during the initial test this backup flare met the destruction efficiency requirement for total non-methane hydrocarbons and VOCs and no excess emissions of these constituents occurred. The average destruction efficiency for the PVLF gas control facilities (i.e., flares) is greater than 98% by weight for total non-methane hydrocarbons since 2007, and greater than 99% for methane since November 2011 when the methane destruction efficiency testing was first required.

6.2.5.3 Summary Table Analysis

VOC concentrations detected in exhaust gas samples collected during combustion efficiency testing are summarized in Table 14. VOC concentrations for the second and third Five-Year Review periods can be compared by reviewing the average concentration results for flares. For 23 of the 24 VOCs, the third Five-Year Review average concentrations were either 1) lower than the second Five-Year average concentrations, 2) detected at concentrations below the second Five-Year Review detection limits, or 3) not detected during either the second or third Five-Year Review periods. Comparison of the VOC average concentrations for Freon 11 during the second and third Five-Year Review periods indicate a slightly higher concentration during the third Five-Year Review period.

Note that during the second Five-Year Review period nine VOCs (toluene, ethylbenzene, 1,3-butadiene, xylene, dichlorbenzene, chlorobenzene, vinyl chloride, benzene, and cis-1,2-dichlorotheylene) detected during two flare source tests, one conducted in November 2008 and the other conducted in November 2011, had maximum concentration values that were apparent data set outliers. For the November 2008 source test, the replicate sample results were inconsistent, which was indicative of possible sample contamination. The Modified Z-score statistical technique was used to determine whether the November 2008 test results for the nine VOCs were outliers. A review of the modified Z-score statistic for each of the nine VOCs confirmed that the maximum values were outliers. In November 2011, a backup flare source test found the destruction efficiency for methane to be low with the flare operating at less than peak performance. As such, exhaust gas samples taken during the test yielded higher maximum concentrations for the nine VOCs. It should be noted that the VOC destruction efficiency requirement was met during the November 2011 emission test so no excess VOC emissions occurred. Consequently, these higher maximum concentrations were determined to be outliers and were not included in the calculation of average values in Table 14 but were included in the concentration ranges.

6.2.6 SURFACE AIR CONCLUSIONS

Routine surface air monitoring includes ambient air monitoring, integrated surface gas monitoring, wellhead pressure monitoring, component leak check monitoring, and flare emissions testing. Third Five-Year Review period routine surface air monitoring data were compared with data collected during the second Five-Year Review period to document the ongoing effectiveness of landfill gas control and to ascertain if landfill conditions have changed. Additionally, integrated surface gas sampling results, wellhead pressure monitoring results, destruction efficiency of flares, and component leak check monitoring results were reviewed for compliance with SCAQMD Rule 1150.1 Compliance Plan criteria.

The results of the third Five-Year Review ambient air and integrated surface gas monitoring indicate that air quality, measured above the surface of the landfill, is comparable to the second Five-Year Review period. TAC concentrations in ambient air samples upwind and downwind of landfill are statistically the same for constituents indicative of landfill gas emissions. Also, TAC concentrations in ambient air samples and integrated surface gas samples are comparable to local background ambient air. Current integrated surface gas monitoring, wellhead pressure monitoring, and component leak checking have continually been in compliance with SCAQMD Rule 1150.1 Compliance Plan requirements. Combustion efficiency testing indicates that average VOC destruction efficiencies are greater than 98% and average methane destruction efficiencies are greater than 99% in compliance with the regulatory requirements and objectives set forth by the SCAQMD.

6.3 SUBSURFACE GAS

Subsurface gas monitoring at the PVLF is regulated primarily by the SCAQMD Rule 1150.1 Compliance Plan. The SCAQMD Rule 1150.1 Compliance Plan requires subsurface gas monitoring, which includes boundary probe monitoring and the monitoring of the landfill gas collection header lines. This section of the third Five-Year Review describes the subsurface gas monitoring at the site.

6.3.1 BOUNDARY PROBE MONITORING

Subsurface boundary probe monitoring is conducted in compliance with the SCAQMD Rule 1150.1 Compliance Plan and the California Department of Resources Recycling and Recovery (CalRecycle) Resolution 81-71 (June 4, 1981). Subsurface boundary probes are located around the perimeter of the PVLF as shown in Figure 7. Boundary probes are sampled on a monthly basis and analyzed for TOC (as methane) and oxygen to monitor potential landfill gas migration. Methane is proportionate to other landfill gas constituents (carbon dioxide and VOCs) and can be used as a surrogate for detecting any landfill gas migration (Huitric and Kong, 2006). The SCAQMD Rule 1150.1 Compliance Plan requires that corrective actions be taken to clear a probe within specified timelines if TOC (as methane) is detected in probes at concentrations equal to or greater than the action level of 5% by volume.

Boundary probe monitoring at Ernie Howlett Park is not required for compliance with the SCAQMD Rule 1150.1 Compliance Plan because the Sanitation Districts do not own or operate the park. Nonetheless, Sanitation Districts' staff monitor the Ernie Howlett Park boundary probes for TOC (as methane) and so a comparison of these results to the SCAQMD Rule 1150.1 Compliance Plan action level is included in this review. Additionally, data from the 23 probes located along the Hawthorne Boulevard boundary of the Main Site (MH probes) and Ernie Howlett Park (PH probes) are not considered in assessing landfill gas migration because these probes are not located along the external perimeter of the site. CalRecycle cancelled mandatory monitoring of these probes in 1982 since gas migration in either direction would only affect the adjacent fill areas.

Since implementing SCAQMD Rule 1150.1 Compliance Plan boundary probe monitoring in April 2000, a sample has also been collected quarterly from the Main Site or South Coast Botanic Garden boundary probe with the highest TOC (as methane) reading, or from a random probe if no TOC (as methane) has been detected during monthly monitoring, and analyzed for VOCs.

The results of boundary probe monitoring are reported to the SCAQMD and DTSC quarterly and to the Los Angeles County Department of Health Services (LADHS) monthly. Both reports include a description of any corrective actions that were implemented and the resulting monitoring readings.

6.3.1.1 SAMPLING

During the third Five-Year period, approximately 14,480 samples were collected from the PVLF boundary probes: 9,101 samples from the Main Site boundary probes, 3,830 samples from the South Coast Botanic Garden boundary probes, and 1,553 from the Ernie Howlett Park boundary probes. Of the monthly samples collected, 16 quarterly samples from the Main Site boundary probes and 4 quarterly samples from the South Coast Botanic Garden boundary probes were analyzed for VOCs as well as TOC (as methane). Note the laboratory confirmed contamination of one Main Site boundary probe sample collected during the third Five-Year Review period and the results were subsequently removed from data set. Additionally, one quarterly sample collected from the South Coast Botanic Garden during the third Five-Year Review period was previously included in the second Five-Year Review and was not duplicated in the third Five-Year Review period data set.

Boundary probe TOC (as methane) and VOC data collected during the second and third Five-Year periods are summarized in Table 15. The second and third Five-Year Review TOC (as methane) results are also compared with the SCAQMD Rule 1150.1 action level of 5% by volume. The percentage of TOC samples at or above the action level, which were not cleared within the SCAQMD required time frame (criterion %) are also provided in Table 15.

6.3.1.2 SUMMARY TABLE ANALYSIS

The top of Table 15 contains a summary of the TOC (as methane) results obtained in the field during monthly boundary probe monitoring. During the third Five-Year Review period, the average Main Site boundary probe TOC (as methane) level was 0.003 percent, the average South Coast Botanic Garden TOC (as methane) level was 0.002 percent and there were no TOC (as methane) detections in the Ernie Howlett Park boundary probes. By comparison, during the second Five-Year Review period the average Main Site boundary probe TOC (as methane) level was 0.002 percent, the average South Coast Botanic Garden TOC (as methane) level was 0.002 percent, and there were no TOC (as methane) detections in the Ernie Howlett Park boundary probes. This comparison shows comparable TOC (as methane) levels detected in site boundary probes. It is important to note that the average TOC (as methane) level detected in the PVLF boundary probes is well below the Rule 1150.1 Compliance Plan action level.

During the third Five-Year Review period, TOC (as methane) was detected, at or above the SCAQMD Rule 1150.1 Compliance Plan action level of 5% by volume, a total of one time in Main Site boundary probes, one time in the South Coast Botanic Garden boundary probes, and was not detected in any of the Ernie Howlett Park boundary probes. At the Main Site, one boundary probe, located along the Northeast boundary, had one TOC (as methane) detection at or above the action level in 2017 and at the South Coast Botanic Garden the one TOC (as methane) detection at or above the action level was during one sampling event in 2016. The detections triggered the implementation of corrective actions to clear the probes below the SCAQMD Rule 1150.1 Compliance Plan action level within 10 days. There have been no additional TOC (as methane) detections in site boundary probes since 2017 indicating that the corrective actions implemented have been successful in controlling subsurface gas migration.

During the second and third Five-Year Review periods, all boundary probe TOC (as methane) detections above the 5% action level were remediated within the SCAQMD Rule 1150.1 required timeline. Consequently, there have been no violations of the SCAQMD Rule 1150.1 Compliance Plan criteria regarding boundary probe monitoring as indicated in the "Criterion %" column in Table 15. In addition, the number of boundary probes with TOC (as methane) detections at or above the 5% action level has been decreasing over time, indicative of the ongoing effectiveness of the landfill gas collection system in controlling landfill gas migration.

Table 15 Summary of Boundary Probe Monitoring

Constituent	Second Five Year Review[(a)]																		Third Five Year Review[(a)]																	
	Main Site						Ernie Howlett Park						South Coast Botanic Garden						Main Site						Ernie Howlett Park						South Coast Botanic Garden					
	No. Analyzed	Min	Max	Avg	No. ≥5%	Criterion %[(d)]	No. Analyzed	Min	Max	Avg	No. ≥5%	Criterion %[(d)]	No. Analyzed	Min	Max	Avg	No. ≥5%	Criterion %[(d)]	No. Analyzed	Min	Max	Avg	No. ≥5%	Criterion %[(d)]	No. Analyzed	Min	Max	Avg	No. ≥5%	Criterion %[(d)]	No. Analyzed	Min	Max	Avg	No. ≥5%	Criterion %[(d)]
Methane, percent	17,446	0	13.25	0.002	2	0	2,201	0	0	0	0	0	5,834	0	5	0.002	1	0	9,101	0	5	0.003	1	0	1,553	0	0	0	0	0	3,830	0	5	0.002	1	0

Constituent	Second Five Year Review[(b)]										Third Five Year Review[(c)]									
	Main Site					South Coast Botanic Garden					Main Site					South Coast Botanic Garden				
	No. Analyzed[g]	Min	Max	Avg[(e)]	No. ND	No. Analyzed	Min	Max	Avg[(e)]	No. ND	No. Analyzed[g]	Min	Max	Avg[(e)]	No. ND	No. Analyzed	Min	Max	Avg[(e)]	No. ND
Methylene Chloride, ppbv	22	< 0.1	0.17	0.11	20	7	< 0.1	< 0.2	< 0.11	7	16	< 0.10	< 0.18	< 0.12	16	4	< 0.10	< 0.18	< 0.12	4
Chloroform, ppbv	22	< 0.05	2.2	0.28	8	7	< 0.05	100	15.34	1	16	< 0.05	1.3	0.24	6	4	< 0.10	26	6.73	2
1,1,1-Trichloroethane, ppbv	22	< 0.05	0.1	0.03	21	7	< 0.05	< 0.1	< 0.06	7	16	< 0.05	0.06	0.05	15	4	< 0.10	< 0.13	< 0.11	4
Carbon Tetrachloride, ppbv	22	< 0.05	0.11	0.07	5	7	< 0.05	0.15	0.05	5	16	< 0.10	0.10	0.06	12	4	< 0.10	0.11	0.07	3
1,1-Dichloroethene, ppbv	22	< 0.05	< 0.06	< 0.05	22	7	< 0.05	< 0.1	< 0.06	7	16	< 0.05	11	< 0.11	15	4	< 0.11	< 0.13	< 0.12	4
Trichloroethylene, ppbv	22	< 0.05	0.29	0.07	7	7	< 0.05	3.6	0.70	3	16	< 0.05	0.12	0.06	15	4	< 0.10	< 0.13	< 0.11	4
Tetrachloroethylene, ppbv	22	< 0.05	2.5	0.39	6	7	0.05	9.7	3.25	0	16	< 0.05	2	0.28	9	4	0.15	1.1	0.55	0
Chlorobenzene, ppbv	22	< 0.05	0.1	0.06	21	7	< 0.05	0.29	0.12	5	16	< 0.10	0.55	< 0.15	15	4	< 0.14	8.1	< 0.15	3
Vinyl Chloride, ppbv	22	< 0.05	< 0.06	< 0.05	22	7	< 0.05	< 0.12	< 0.07	7	16	< 0.06	0.35	0.06	14	4	< 0.10	< 0.13	< 0.11	4
1,1-Dichloroethane, ppbv	22	< 0.05	0.21	0.03	21	7	< 0.05	< 0.1	< 0.06	7	16	< 0.05	< 0.13	< 0.10	16	4	< 0.10	< 0.13	< 0.11	4
1,2-Dichloroethane, ppbv	22	< 0.25	< 0.28	< 0.25	22	7	< 0.25	< 0.5	< 0.29	7	16	< 0.25	< 0.25	< 0.25	16	4	< 0.13	< 0.25	< 0.22	4
Benzene, ppbv	22	< 0.25	< 0.59	< 0.33	22	7	< 0.25	< 0.5	< 0.29	7	16	< 0.25	1.2	0.20	14	4	< 0.25	1.5	< 0.26	3
Toluene, ppbv	22	< 1	2.4	0.69	20	7	< 1	1.8	0.78	6	16	< 1	< 1	< 1	16	4	< 0.57	3.6	0.70	2
Ethylbenzene, ppbv	22	< 0.19	0.75	0.15	21	7	< 0.25	1.6	0.48	5	16	< 0.21	3.7	< 0.24	15	4	< 0.21	61	< 0.26	3
Acetonitrile, ppbv	22	< 0.42	< 2.5	< 1.57	22	7	< 1.6	< 3.3	< 2.00	7	16	< 1.6	< 1.6	< 1.6	16	4	< 1.5	< 1.6	< 1.58	4
1,2-Dibromoethane, ppbv	22	< 0.05	< 0.52	< 0.16	22	7	< 0.05	< 0.26	< 0.09	7	16	< 0.05	< 0.27	< 0.12	16	4	< 0.10	< 0.13	< 0.11	4
Benzyl Chloride, ppbv	22	< 0.25	< 1	< 0.56	22	7	< 0.31	< 0.98	< 0.54	7	16	< 0.31	< 1.3	< 0.97	16	4	< 0.90	< 1.3	< 1.2	4
Xylene[(f)], ppbv	22	< 1.23	< 1.63	< 1.48	22	7	< 1.52	2.2	1.09	6	16	< 1.5	4.1	0.97	15	4	< 0.91	55	< 1.32	3
Dichlorobenzene[(f)], ppbv	22	< 0.27	0.34	0.63	21	7	< 0.44	2	0.96	6	16	< 1.1	< 3.5	< 1.9	16	4	< 2.06	7.04	< 2.47	3
TOC (as methane), ppmv	22	< 2	33	3.40	11	7	< 2	2700	388	3	16	< 2	900	57.96	5	4	< 2	58	15.83	1

(a) Second Five-Year Review methane data monthly January 2007 - December 2013; Third-Year Review methane data monthly January 2014 - December 2018
(b) Second Five-Year Review TAC data from select probes collected quarterly 1stQ 2007 – 1stQ 2014
(c) Third Five-Year Review TAC data from select probes collected quarterly 2ndQ 2014 - 4thQ 2018
(d) Criterion percent is number of action level detections not corrected pursuant SCAQMD Compliance Plan time frame requirements
(e) Used 1/2 detection limits to calculate average unless all results were non-detected
(f) Xylene is total of m, p- and o-xylenes; Dichlorobenzene is total of m-, o-, and p-dichlorobenzene
ppmv - parts per million by volume; ppbv - part per billion by volume; NA - constituent not analyzed; Min - minimum; Max - maximum; Avg - average; ND - not detected; "<" - less than detection limit

The bottom of Table 15 contains a summary of the boundary probe TOC (as methane) and VOC monitoring results for the second and third Five-Year Review periods. The number of samples analyzed, concentration ranges and averages, and the number of non-detects for Main Site and South Coast Botanic Garden boundary probes are shown. During the third Five-Year Review period, average VOC concentrations detected in Main Site boundary probes were slightly higher than the VOC concentrations detected during the second Five-Year Review period for six VOCs: 1,1-dichloroethene, chlorobenzene, vinyl chloride, benzene, ethylbenzene, and xylene. The average concentrations of benzene and xylene detected in the third Five-Year Review period were at levels lower than the average detection limits of the second Five-Year Review period.

Note that the remaining four VOCs also had higher maximum concentration values during the third Five-Year Review period. For chlorobenzene and ethylbenzene the higher maximum concentration values were detected during one sampling event in October 2014. Field contamination was suspected and was confirmed by field duplicate sample results. For 1,1-dichloroethene and vinyl chloride the higher maximum concentration values were detected during one sampling event in June 2015. The June 2015 sample was collected from the boundary probe with the highest concentration of TOC (as methane) in accordance with SCAQMD Rule 1150.1 requirements leading to elevated VOC average concentrations that are not representative of routine sample results. These maximum concentration values are apparent data set outliers. The Modified Z-score statistical technique was used to determine whether the test results for each of the four VOCs were outliers. A review of the modified Z-score statistic for each of the four VOCs confirmed that the maximum values were outliers. Consequently, these higher maximum concentrations were determined to be outliers and were not included in the calculation of average values in Table 15 but were included in the concentration ranges.

Similarly for boundary probes at the South Coast Botanic Garden, 6 of the 19 VOCs analyzed had higher concentrations during the third Five-Year Review than during the second Five-Year Review. The higher concentrations can be attributed to one sampling event or 25% of the data set. The sample was collected from the boundary probe with the highest concentration of TOC (as methane) in accordance with SCAQMD Rule 1150.1 requirements resulting in elevated VOC average concentrations that are not representative of routine sample results. The Modified Z-score statistical technique was used to determine whether the test results for each of the six VOCs were outliers and it was confirmed that the maximum concentration values were outliers. The higher maximum concentrations were subsequently removed from the calculation of average values in Table 15 but were included in the concentration ranges. At Ernie Howlett Park, no samples were analyzed for VOCs during the second or third Five-Year Review periods because boundary probe monitoring is not required for compliance with the SCAQMD Rule 1150.1 Compliance Plan.

For the Main Site and South Coast Botanic Garden, VOC average concentrations for routine samples during the third Five-Year Review period were either similar to, were detected at concentrations below the second Five-Year Review period detection limits, or were not detected during either the second or third Five-Year Review periods. Analysis of the third Five-Year Review boundary probe monitoring TOC (as methane) and VOC data, as described above, indicates that the PVLF landfill gas collection system is effective in controlling subsurface gas migration and that the Sanitation Districts are in compliance with SCAQMD Rule 1150.1 Compliance Plan boundary probe criteria.

6.3.2 LANDFILL GAS HEADER LINE MONITORING

In accordance with the SCAQMD Rule 1150.1 Compliance Plan, samples of extracted (recovered) landfill gas are taken from the landfill gas collection system header lines on a quarterly basis and analyzed for methane, carbon dioxide, oxygen, nitrogen, argon, and VOCs to assess the composition of landfill gas entering the gas control facilities (i.e., flares). Generally, gas collection Header No. 1 draws landfill gas from the site's perimeter gas migration control wells while Header No. 2 draws landfill gas from gas extraction wells placed in interior refuse. Header line monitoring results are included in quarterly reports submitted to the SCAQMD and DTSC.

6.3.2.1 SAMPLING

During the third Five-Year Review period, gas collection header line sampling was conducted quarterly from January 2014 through December 2018. Header line sampling locations are shown in Figure 8. During the third Five-Year Review period, 20 header line landfill gas samples were collected. Header line monitoring results for Header No. 1 and Header No. 2 are summarized in Table 16. The number of samples analyzed, concentration ranges and averages, and the number of non-detects for the second and third Five-Year Review periods are shown.

Table 16 Summary of Recovered Landfill Gas Monitoring at Header Lines

Constituent	Second Five Year Review [a]										Third Five Year Review [b]									
	Header 1[c]					Header 2[c]					Header 1[c]					Header 2[c]				
	No. Analyzed	Min	Max	Avg[d]	No. ND	No. Analyzed	Min	Max	Avg[d]	No. ND	No. Analyzed	Min	Max	Avg[d]	No. ND	No. Analyzed	Min	Max	Avg[d]	No. ND
Oxygen, percent	28	16.6	18.6	17.9	0	28	7.4	14.1	9.69	0	20	17.5	18.7	18.0	0	20	8.7	11.6	9.82	0
Argon, percent	28	0.84	1.03	0.89	0	28	0.54	0.71	0.61	0	20	0.73	0.91	0.87	0	20	0.52	0.69	0.64	0
Nitrogen, percent	28	74	76.5	75.0	0	28	46.9	61.2	52.6	0	20	74.8	76.7	75.4	0	20	55.2	59.9	57.8	0
Methane, percent	28	1.07	2.15	1.72	0	28	11.6	22.1	18.6	0	20	1.25	1.74	1.48	0	20	13.5	16.5	14.8	0
Carbon Dioxide, percent	28	2.02	3.51	2.82	0	28	9.73	19.7	16.5	0	20	2.15	3.31	2.74	0	20	13.1	16.7	14.9	0
Hydrogen Sulfide, ppmv	28	< 0.5	1.6	0.62	9	28	6.2	30	19.5	0	20	< 0.5	0.6	0.29	18	20	6.7	19	13.5	0
Methylene Chloride, ppbv	28	< 10	< 50	< 15.9	28	28	< 40	< 200	< 59	28	20	< 10	< 18	< 11.6	20	20	< 40	< 140	< 52	20
Chloroform, ppbv	28	< 4.9	21	4.46	19	28	< 20	< 37	< 22	28	20	< 4.9	< 14	< 10.44	20	20	< 20	< 100	< 45	20
1,1,1-Trichloroethane, ppbv	28	< 5	< 21	< 6.20	28	28	< 20	< 38	< 23	28	20	< 5	< 14	< 10.17	20	20	< 20	< 100	< 44	20
Carbon Tetrachloride, ppbv	28	< 5.2	< 21	< 5.84	28	28	< 21	< 22	< 21	28	20	< 5.3	< 14	< 10.25	20	20	< 21	< 110	< 44	20
1,1-Dichloroethene, ppbv	28	< 4.8	< 21	< 5.69	28	28	< 19	34	21	9	20	< 4.8	< 14	< 10.65	20	17	< 19	< 55	< 45	17
Trichloroethylene, ppbv	28	< 5.2	< 21	< 5.86	28	28	< 22	91	42	1	20	< 5.4	< 13	< 10.29	20	20	< 40	41	26	17
Tetrachloroethylene, ppbv	28	< 5	6.3	3.21	25	28	< 20	47	22	14	20	< 5.2	< 13	< 10.17	20	20	< 21	< 100	< 44	20
Chlorobenzene, ppbv	28	< 26	150	83.3	2	28	< 100	3,300	2,391	1	20	46	71	55.6	0	20	2,100	4,000	3,020	0
Vinyl Chloride, ppbv	28	61	440	132	0	28	380	870	724	0	20	75	130	89	0	20	560	790	679	0
1,1-Dichloroethane, ppbv	28	< 4.8	< 21	< 5.69	28	28	< 19	39	15	21	20	< 4.8	< 13	< 10.04	20	20	< 19	< 100	< 44	20
1,2-Dichloroethane, ppbv	28	< 25	< 100	< 27.9	28	28	< 100	< 110	< 101	28	20	< 13	< 25	< 24.2	20	20	< 100	< 100	< 100	20
Benzene, ppbv	28	46	270	132	0	28	4,100	8,600	6,714	0	20	49	87	63	0	20	5,700	7,600	6,365	0
Toluene, ppbv	28	< 100	150	73.4	23	28	2,400	7,900	4,921	0	20	< 57	< 100	< 97.1	20	20	2,800	3,800	3,300	0
Ethylbenzene, ppbv	28	120	750	277	0	28	8,900	25,000	17,854	0	20	120	250	156	0	20	15,000	27,000	22,400	0
Acetonitrile, ppbv	28	< 42	< 660	< 183	28	28	< 170	< 1,000	< 658	28	20	< 130	< 160	< 158	20	20	< 660	< 1200	< 687	20
1,2-Dibromoethane, ppbv	28	< 4.7	< 1,000	< 50.61	28	28	< 19	< 1,000	< 95	28	20	< 4.7	< 27	< 11.72	20	20	< 19	< 110	< 51	20
Benzyl Chloride, ppbv	28	< 26	< 1,000	< 87.21	28	28	< 100	< 1,000	< 244	28	20	< 31	< 130	< 94.00	20	20	< 130	< 720	< 398	20
Xylene[e], ppbv	28	< 152	970	256	8	28	6,700	31,800	21,189	0	20	< 126	234	91	15	20	15,200	21,700	18,255	0
Dichlorobenzene[e], ppbv	28	< 206	183	109	13	28	360	1,512	946	0	20	< 110	87	77	11	20	400	1,490	955	0

(a) Second Five-Year Review data collected quarterly March 2007 - December 2013
(b) Third Five-Year Review data collected quarterly February 2014 - December 2018
(c) Header 1 is gas migration control headerline and Header 2 is interior gas collection headerline.
(d) Used 1/2 detection limits to calculate average unless all results were non-detected.
(e) Xylene is total of m+p- and o-xylenes; Dichlorobenzene is total of m-, o-, and p-dichlorobenzenes.
ppmv - parts per million by volume; ppbv - part per billion by volume; NA - constituent not analyzed; Min - minimum; Max - maximum; Avg - average; ND - not detected; "<" - less than detection limit

6.3.2.2 SUMMARY TABLE ANALYSIS

As is expected, average concentrations of air compounds (oxygen, argon, and nitrogen) in Header No. 1 and Header No. 2 are generally higher during the third Five-Year Review period than in the second Five-Year Review period. This is due to the ongoing decline in landfill gas production (methane and carbon dioxide) as the waste mass at PVLF continues to age.

During the third Five-Year Review period, average VOC concentrations detected in Header No. 1 landfill gas samples were lower than the average VOC concentrations detected during the second Five-Year Review period. Similarly, during the third Five-Year Review period, average VOC concentrations detected in Header No. 2 landfill gas samples were lower than the average VOC concentrations detected during the second Five-Year Review period with the exception of four VOCs. Chlorobenzene, ethylbenzene, dichlorobenzene, and 1,1-dichloroethene were detected at slightly higher average concentrations during the third Five-Year Review period. The higher average concentration for these four VOCs is not indicative of increasing landfill gas production as the total VOC concentration in the third Five-Year Review period is 8% lower than the total VOC concentration in the second Five-Year Review period. This decrease in overall VOC concentration is consistent with declining refuse decomposition and reduced landfill gas production.

6.3.2.3 LANDFILL GAS PRODUCTION ANALYSIS

Landfill gas is primarily composed of nearly equal amounts of carbon dioxide and methane with trace levels of VOCs. Of these VOCs, vinyl chloride is not commonly detected in background ambient air (i.e., no background sources). It is formed in landfills under anaerobic conditions through microbial reductive dehalogenation of chlorinated hydrocarbons such as TCE and PCE (Sanitation Districts, June 1995a). It is expected that landfill generated gases, such as methane and vinyl chloride, will decline over time in a closed landfill. As Header No. 2 draws landfill gas from wells placed in interior refuse, it contains more representative levels of landfill gas constituents. A review of the vinyl chloride and methane levels in Header No. 2 shows the decrease in landfill gas production at the site since the RI, as presented in Table 17.

Table 17 Average Vinyl Chloride and Methane Levels

Year	Header 2	
	Methane, %	Vinyl Chloride, ppbv
1990-1991, 1994	29.7	3,057
1998, 2000-2006	25.0	926
2007-2013	18.6	724
2014-2018	14.8	679

Landfill generated gases conveyed in the header lines are lower in the third Five-Year Review data set compared with levels during the second Five-Year Review period. The reductions are due to mass removal of VOCs through operation of the landfill gas recovery system and due to reduced organic matter available for natural degradation by microorganisms within the landfill.

6.3.3 SUBSURFACE GAS CONCLUSIONS

Routine sampling data from subsurface gas monitoring programs were summarized and include monitoring of boundary probes and gas collection system header lines conducted pursuant to SCAQMD Rule 1150.1 Compliance Plan requirements. Third Five-Year Review boundary probe data was compared with second Five-Year Review boundary probe data and SCAQMD action levels to document the ongoing effectiveness of landfill gas control systems. Methane detections in the boundary probes have been decreasing, indicative of the on-going effectiveness of the landfill gas collection system. Boundary probe monitoring has continually been in compliance with all of the regulatory requirements and objectives set forth by SCAQMD and CalRecycle.

Landfill gas is routinely sampled within the gas collection system header lines prior to treatment at the flare station. Thus, header line monitoring results are indicative of the composition of gas generated from within the landfill. Header line monitoring results show that methane concentrations are decreasing, indicating that landfill gas production is on the decline. In fact, as of 2018, methane levels were nearly 70 percent lower than they were during the RI. VOC concentrations in landfill gas collected from within the interior of the landfill have also declined when compared with levels detected during the RI.

Analytical results from routine subsurface gas monitoring indicate that landfill gas is not migrating from the PVLF into adjacent properties. This is due in part to the effectiveness of the landfill gas collection and control system as well as the fact that the potential for landfill gas migration will continue to be minimized as landfill gas production declines.

6.4 STORM WATER

During the third Five-Year Review period, the State Water Resources Control Board (State Water Board) adopted the National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Storm Water Associated With Industrial Activities or Industrial General Permit, Order No. 2014-0057-DWQ to replace Order No. 97-03-DWQ. During the adoption process, the Sanitation Districts received guidance from the State Water Board which indicated that landfills are eligible to discontinue industrial storm water permit coverage when waste placement and closure activities are complete. Since the Sanitation Districts had completed all closure activities, a request to terminate coverage for the PVLF pursuant to Section E.9 of Order No. 97-03-DWQ was submitted. The Notice of Termination was approved by the Regional Water Quality Control Board on July 24, 2015. As such, review of sampling and monitoring data for storm water will not extend beyond that date and storm water requirements discussed below will be based on Order No. 97-03-DWQ.

As extensively described in the first Five-Year Review, the surface water management facilities at the PVLF were divided into three sections by Hawthorne and Crenshaw boulevards. There were a total of 10 storm water discharge locations from the combined site

(See Figure 9): eight from the Main Site, one from the South Coast Botanic Garden, and one from Ernie Howlett Park.

6.4.1 MONITORING PROGRAM

6.4.1.1 STORM WATER SAMPLING

Pursuant to the Industrial General Permit during the wet season (October 1st – May 31st), the Sanitation Districts attempted to collect two storm water discharge samples at each of the representative storm water discharge points (NPD2, NPD3, NPD4, NPD5, NPD12, and NPD13). If possible, one set of samples is collected from the first storm event of the wet season. The Industrial General Permit required that samples be collected during the first hour of discharge.

Section B.5.c. of the Industrial General Permit required that all samples be analyzed for total suspended solids, pH, conductivity, and total organic carbon (TOC). In addition to the required parameters, Section B.5.c.ii required that facility operators analyze for "Toxic chemicals and other pollutants that are likely to be present in storm water discharges in significant quantities". If any of these pollutants were not detected in significant quantities after two consecutive sampling events, the Industrial General Permit allowed those pollutants to be eliminated from future sample analysis. Consequently, the monitoring parameters have changed over time. Table 18 identifies the parameters that have been monitored at one or more locations at any time during the third Five-Year Review period.

Table 18 Storm Water Monitoring Parameters

Constituent			
General Parameters			
pH	Conductivity	Total Suspended Solids	Total Organic Carbon
Metals			
Arsenic	Total Copper	Total Lead	Total Vanadium
Total Barium	Total Iron	Total Nickel	Total Zinc
Total Chromium			
Volatile Organic Compounds			
1,1,1-Trichloroethane	Benzene	Chloromethane	Tetrachloroethylene
1,1,2,2-Tetrachloroethane	Bromodichloromethane	cis-1,3-Dichloropropene	Toluene
1,1,2-Trichloroethane	Bromoform	Dibromochloromethane	trans-1,2-Dichloroethylene
1,1-Dichloroethane	Bromomethane	Ethyl Benzene	trans-1,3-Dichloropropene
1,1-Dichloroethylene	Carbon Tetrachloride	m-Dichlorobenzene	Trichloroethylene
1,2-Dichloroethane	Chlorobenzene	Methylene Chloride	Vinyl Chloride
1,2-Dichloropropane	Chloroethane	o-Dichlorobenzene	
2-Chloroethylvinylether	Chloroform	p-Dichlorobenzene	
Semi-Volatile Organic Compounds			
Diethylhexyl Phthalate		Pentachlorophenol	

6.4.2 Summary Table Analysis

A storm water sampling result summary table has been prepared to assess the quality of storm water discharges for the third Five-Year Review Period. The compounds have been divided for discussion purposes into chemical categories as follows: 1) general parameters, 2) metals, 3) VOCs, and 4) SVOCs. Table 19 lists the total number of samples analyzed, the range of values, and the number of non-detect results.

The data are divided into first Five-Year Review period (1994 through 2006), the second Five-Year Review period (2007 through 2013), and the third Five-Year Review period (2014 through 2018). Storm water samples were collected from locations that are downgradient of industrial activities at the site. The compounds presented include those that have been analyzed in the third Five-Year Review period.

6.4.2.1 General Parameters

Based on the criteria described in Section 6.4.2, four general parameters are presented in Table 19. These parameters are pH, conductivity, total suspended solids, and total organic carbon. Comparison of the maximum values between the second and third Five-Year Review periods indicate that all maximum values in the third Five-Year Review period are consistently lower than those in the second Five-Year Review period data set.

6.4.2.2 Metals

Metals were consistently detected in the storm water samples during the three review periods. Comparisons of the maximum values between the second and third Five-Year Review periods indicate that the maximum values in the third Five-Year Review are generally lower than those in the second Five-Year Review except for chromium. The maximum value for chromium during the third Five-Year Review period (0.19 mg/L) is close to maximum value during the second Five-Year Review period (0.162 mg/L).

Metals are naturally present in soils and are generally detected at levels that correlated with those of suspended solids. A comparison between the two sets of data (suspended solids and metals) indicated that the concentrations of metals are closely associated with the amount of natural suspended solids carried by the runoff. Because metals are naturally occurring in the environment and not necessarily related to any impacts from the landfill, application of BMPs for erosion and sediment control were shown to be effective for reducing metals in storm water runoff from the site.

6.4.2.3 Volatile Organic Compounds

No VOCs were detected in the storm water samples during the third Five-Year Review period.

6.4.2.4 Semi-Volatile Organic Compounds

No SVOCs were detected in the storm water samples during the third Five-Year Review period.

Table 19 Storm Water Sampling Results

Constituents[1]	Units	First Five-Year Review Period (7/1/1994-12/31/2006)[2]				Second Five-Year Review Period (1/1/2007-12/31/2013)[2]				Third Five-Year Review Period (1/1/2014-12/31/2018)[2]			
		No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND
General Parameters													
pH	pH units	95	6.04	8.99	--	61	4.64	8	--	7	6.6	7.4	--
Conductivity	umhos/cm @25C	84	35	3000	--	49	63	1000	--	6	67	325	--
Total Suspended Solids	mg/L	84	36	4444	0	49	28	1580	0	6	131	855	0
Total Organic Carbon	mg/L	95	3.3	252	0	61	6	190	0	7	6.45	48.5	0
Metals													
Arsenic	mg/L	84	<0.003	0.24	8	48	<0.01	0.078	26	2	<0.02	<0.02	2
Barium	mg/L	84	<0.02	2.46	1	49	<0.01	1.36	1	6	<0.010	0.48	2
Chromium	mg/L	84	<0.02	0.27	11	49	<0.005	0.162	3	6	<0.02	0.19	2
Copper	mg/L	84	<0.02	0.27	4	49	<0.01	0.32	1	6	<0.04	0.13	2
Iron	mg/L	69	0.17	171	0	49	<0.04	52	1	6	<0.50	45.4	1
Lead	mg/L	84	<0.04	0.51	14	49	<0.05	0.121	4	5	<0.02	0.05	2
Nickel	mg/L	84	<0.04	0.48	10	49	<0.01	0.21	5	5	<0.07	0.13	4
Vanadium	mg/L	84	<0.01	0.7	13	49	<0.01	0.23	2	6	<0.01	0.2	2
Zinc	mg/L	84	<0.1	1.5	2	49	<0.02	2.1	1	6	<0.05	0.35	2
Volatile Organic Compounds													
1,1,1-Trichloroethane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
1,1,2,2-Tetrachloroethane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
1,1,2-Trichloroethane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
1,1-Dichloroethane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
1,1-Dichloroethylene	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
1,2-Dichloroethane	µg/L	18	<1	<10	18	23	<0.5	<1	23	3	<0.50	<2.5	3
1,2-Dichloropropane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
2-Chloroethylvinylether	µg/L	18	<5	<50	18	23	<5	<50	23	3	<0.50	<2.5	3

Table 19 Storm Water Sampling Results (continued)

Constituents[1]	Units	First Five-Year Review Period (7/1/1994-12/31/2006)[2]				Second Five-Year Review Period (1/1/2007-12/31/2013)[2]				Third Five-Year Review Period (1/1/2014-12/31/2018)[2]			
		No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND
Volatile Organic Compounds (continued)													
Benzene	µg/L	18	<1	<10	18	23	<0.5	<1	23	3	<0.50	<2.5	3
Bromodichloromethane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
Bromoform	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
Bromomethane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
Carbon Tetrachloride	µg/L	18	<1	<10	18	23	<0.5	<1	23	3	<0.50	<2.5	3
Chlorobenzene	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
Chloroethane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
Chloroform	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
Chloromethane	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
cis-1,3-Dichloropropene	µg/L	18	<1	<10	18	23	<0.5	<1	23	3	<0.50	<2.5	3
Dibromochloromethane	µg/L	18	<1	<10	18	11	<1	<1	11	3	<0.50	<2.5	3
Ethylbenzene	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
m-Dichlorobenzene	µg/L	34	<1	<50	34	26	<0.5	<25	26	3	<0.50	<2.5	3
Methylene Chloride	µg/L	18	<1	<50	18	23	<1	4	22	3	<0.50	<2.5	3
o-Dichlorobenzene	µg/L	34	<1	<50	34	26	<0.5	<25	26	3	<0.50	<2.5	3
p-Dichlorobenzene	µg/L	34	<1	<50	34	26	<0.5	<25	26	3	<0.50	<2.5	3
Tetrachloroethylene	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
Toluene	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
trans-1,2-Dichloroethylene	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
trans-1,3-Dichloropropene	µg/L	18	<1	<10	18	23	<0.5	<1	23	3	<0.50	<2.5	3
Trichloroethylene	µg/L	18	<1	<10	18	23	<1	<1	23	3	<0.50	<2.5	3
Vinyl Chloride	µg/L	18	<1	<10	18	23	<0.5	<1	23	3	<0.50	<2.5	3

Table 19 Storm Water Sampling Results (continued)

Constituents[1]	Units	First Five-Year Review Period (7/1/1994-12/31/2006)[2]				Second Five-Year Review Period (1/1/2007-12/31/2013)[2]				Third Five-Year Review Period (1/1/2014-12/31/2018)[2]			
		No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND
Semivolatile Organic Compounds													
bis(2-Ethylhexyl)phthalate	µg/L	70	<1	26	50	23	<4.9	47	22	3	<2.0	<10.0	3
Pentachlorophenol	µg/L	70	<0.1	29.9	60	23	<1.9	5.7	20	3	<1.0	<5.0	3

1. Constituent list includes those analyzed for during the third Five-Year Review period (2014-2018). No storm water data available after 2015.
2. Sampling results are shown for the total runoff (unfiltered) samples for all constituents. Total metal (sediment and liquid fraction) results are presented.
ND - not detected; NA - Not Analyzed; "--" - not applicable; "<" - less than detection limit
Min is the minimum detection limit. If the minimum detection limit is not available during the review period, Min is the minimum detected concentration.
Max is the maximum detected concentration. If the maximum detected concentration is not available, Max is the maximum detection limit during the review period.

6.4.3 STORM WATER CONCLUSIONS

During this third Five-Year Review, storm water sampling data from January 1, 2014 through July 24, 2015 were evaluated. Comparisons of the maximum values with the second Five-Year Review have shown that best management practices implemented at the site were effective in controlling and/or preventing storm water pollution. In addition, storm water discharges were infrequent and lacking any repeated detections of man-made constituents. The site continues to control erosion effectively and was in compliance with all NPDES permit conditions.

6.5 INDUSTRIAL WASTEWATER

This third Five-Year Review of the PVLF includes an assessment of the industrial wastewater treatment system employed at the PVLF. As extensively described in the first Five-Year Review, the industrial wastewater is generated from three areas of the PVLF: the Main Site, the South Coast Botanic Garden, and Ernie Howlett Park. Figures 10 and 11 show the collection and conveyance systems for condensate and groundwater, respectively. A schematic diagram of the liquid conveyance system of industrial wastewater is presented in Figure 12. All industrial wastewater discharged from the site is comingled with business and residential wastewater while conveyed through closed underground sewer lines, to a centralized wastewater treatment facility in Carson, California.

Industrial wastewater generated at the site is discharged to the sanitary sewer pursuant to industrial wastewater discharge permits issued by the Industrial Wastewater Section of the Sanitation Districts. These permits contain monitoring and reporting requirements and discharge limitations in compliance with the Sanitation Districts' Wastewater Ordinance and other applicable laws and regulations to protect the downstream sanitary sewer system and to ensure compliance at the downstream regional wastewater treatment facility.

The site currently operates under three Industrial Wastewater Discharge Permits: Permit Nos. 11561, 10995, and 11695. The permitted discharge locations for Permit Nos. 11561, 10995, and 11695 are designated on Figures 10 and 11 as, SB3, SB4, and SB5, respectively. These permits are revised and renewed every five years. The current applicable versions of Permit Nos. 11561, 10995, and 11695 became effective on January 23, 2015.

As extensively described in the first Five-Year Review, the majority of the industrial wastewater from the Main Site is discharged to the sanitary sewer at Discharge Station SB3 (Permit No. 11561). These flows include landfill gas condensate (condensate), extracted groundwater, and underdrain water from the Main Site. The flows from these sources are treated (air stripper and a clarifier) prior to being combined with the dry-weather surface runoff diversion system flows from the western portion of the Main Site. The underdrain water and extracted groundwater from Ernie Howlett Park discharges to the sanitary sewer at SB4 under Permit No. 10995. Extracted groundwater and condensate from the South Coast Botanic Garden and dry-weather surface runoff from the eastern portion of the Main Site are discharged to the sanitary sewer at SB5 under Permit No. 11695. Treatment of the flows at SB4 and SB5 is not necessary because these flows meet the discharge limitations of their respective industrial wastewater discharge permits without treatment.

6.5.1 OPERATION AND MAINTENANCE

Table 20 outlines inspection and data collection frequencies for components of the industrial wastewater collection, treatment, and discharge system. If any conditions are observed that require maintenance, the field technician will either perform the work or submit a request for the work to be performed by qualified personnel.

6.5.2 MONITORING PROGRAM

As required by the current Self-Monitoring Requirements (SMRs) associated with Permit Nos. 10995, 11561, and 11695, wastewater samples are collected on a semi-annual basis from each of the discharge locations. The industrial wastewater sampling parameters and the currently applicable discharge limitations are presented in Table 21.

6.5.3 SUMMARY TABLE ANALYSIS

A summary of the industrial wastewater SMR data has been prepared for the third Five-Year Review Period (2014 through 2018) to assess compliance with the industrial wastewater discharge permits. The compounds have been divided for discussion purposes into categories as follows: 1) general parameters, 2) metals, 3) VOCs, 4) SVOCs, and 5) pesticides. Table 22 includes the total number of samples analyzed, the range of values, and the number of non-detects for the review period. In addition, the data are compared to the applicable permit limitations (Limit). The percentage of instances where permit limitation criteria (% Criterion) were exceeded in the third Five-Year Review period is provided. The analytical results are discussed in the following paragraphs.

6.5.3.1 GENERAL PARAMETERS

The site has been in compliance with permit limitations for the general mineral and physical parameters (Table 22). Soluble sulfide was not detected in third Five-Year Review period. There are no discharge limitations for suspended solids and total chemical oxygen demand (COD). There have been no exceedances of the pH and total cyanide limitations.

Table 20 Inspection Schedule for Systems Generating Industrial Wastewater

Component	Inspection Frequency	Data Collection Frequency
Condensate Collection Sumps And Tanks		
Sump 7	Daily	Daily
Getty Sump	Daily	Daily
NE Torpedo Sump	Daily	Daily
Parcel 4 Sump	Daily	Weekly
Hawthorne Sump	Daily	Daily
50 Series Sump	Daily	Weekly
Low Point Tank	Daily	Weekly
Crenshaw Sump	Daily	Daily
FS3 Sump	Daily	Daily
BC Sump	Daily	Weekly
BR Sump	Daily	Weekly
Extraction Wells		
E01	Weekly	Bi-Weekly
E02	Weekly	Bi-Weekly
E03	Weekly	Bi-Weekly
E04	Weekly	Bi-Weekly
E05	Weekly	Bi-Weekly
E06	Weekly	Bi-Weekly
E07	Weekly	Weekly
E08	Weekly	Weekly
E09	Weekly	Bi-Weekly
E10	Weekly	Weekly
E11	Weekly	Weekly
E12	Weekly	Bi-Weekly
E13	Weekly	Weekly
E14	Weekly	Daily
E15	Weekly	Weekly
E16	Weekly	Weekly
E17	Weekly	Weekly
E18	Weekly	Weekly
E01-E11 Totalizer	Daily	Daily
Sewer Discharge Points		
SB3	Twice Daily	Daily
SB4	Bi-Weekly	Weekly
SB5	Twice Daily	Daily
Gas Well Pumps		
First Bench Wells	Daily	Weekly
Other Wells (QED Well Pumps)	Weekly	Weekly (Monthly)
Discharge Tanks		
Tanks at SB3	Daily	Daily
Tank at SB5	Daily	Daily

Table 21 Industrial Wastewater Monitoring Program for the Palos Verdes Landfill

Constituent	Units	Permit 11561 (SB3)		Permit 10995 (SB4)		Permit 11695 (SB5)	
		Monitoring Parameter	Limitation	Monitoring Parameter	Limitation	Monitoring Parameter	Limitation
General Parameters							
pH	pH units	Yes	≥6.0	Yes	≥6.0	Yes	≥6.0
Soluble Sulfide	mg/L	Yes	0.1	Yes	0.1	Yes	0.1
Suspended Solids	mg/L	Yes	--	Yes	--	Yes	--
Total COD	mg/L	Yes	--	Yes	--	Yes	--
Total Cyanide	mg/L	Yes	1.2	No	--	Yes	1.2
Metals							
Arsenic	mg/L	Yes	3	No	--	Yes	3
Cadmium	mg/L	Yes	0.69	No	--	Yes	0.69
Total Chromium	mg/L	Yes	2.77	No	--	Yes	2.77
Copper	mg/L	Yes	3.38	No	--	Yes	3.38
Lead	mg/L	Yes	0.69	No	--	Yes	0.69
Mercury	mg/L	Yes	2	No	--	Yes	2
Nickel	mg/L	Yes	3.98	No	--	Yes	3.98
Silver	mg/L	Yes	0.43	No	--	Yes	0.43
Zinc	mg/L	Yes	2.61	No	--	Yes	2.61
Volatile Organic Compounds							
Volatile TTO	µg/L	Calculated Value	1,000	Calculated Value	1,000	Calculated Value	1000
1,1,1-Trichloroethane	µg/L	Yes	--	Yes	--	Yes	--
1,1-Dichloroethane	µg/L	Yes	--	Yes	--	Yes	--
1,2-Dichloroethane	µg/L	Yes	--	Yes	--	Yes	--
Benzene	µg/L	Yes	--	Yes	--	Yes	--
Bromodichloromethane	µg/L	Yes	--	Yes	--	Yes	--
Bromoform	µg/L	Yes	--	Yes	--	Yes	--
Chlorobenzene	µg/L	Yes	--	Yes	--	Yes	--
Chloroform	µg/L	Yes	--	Yes	--	Yes	--
Dibromochloromethane	µg/L	Yes	--	Yes	--	Yes	--
Ethyl Benzene	µg/L	Yes	--	Yes	--	Yes	--
Methylene Chloride	µg/L	Yes	--	Yes	--	Yes	--
o-Dichlorobenzene	µg/L	Yes	--	Yes	--	Yes	--
p-Dichlorobenzene	µg/L	Yes	--	Yes	--	Yes	--

Table 21 Industrial Wastewater Monitoring Program for the Palos Verdes Landfill (continued)

Constituent	Units	Permit 11561 (SB3)		Permit 10995 (SB4)		Permit 11695 (SB5)	
		Monitoring Parameter	Limitation	Monitoring Parameter	Limitation	Monitoring Parameter	Limitation
Tetrachloroethylene	µg/L	Yes	--	Yes	--	Yes	--
Toluene	µg/L	Yes	--	Yes	--	Yes	--
Trans-1,2-dichloroethylene	µg/L	Yes	--	Yes	--	Yes	--
Trichloroethylene	µg/L	Yes	--	Yes	--	Yes	--
Vinyl Chloride	µg/L	Yes	--	Yes	--	Yes	--
Semi-Volatile Organic Compounds							
Semi-Volatile TTO	µg/L	Calculated Value	1000	Calculated Value	1000	Calculated Value	1000
Acenaphthene	µg/L	Yes	--	Yes	--	Yes	--
Anthracene	µg/L	Yes	--	Yes	--	Yes	--
Diethyl Phthalate	µg/L	Yes	--	Yes	--	Yes	--
Diethylhexyl Phthalate	µg/L	Yes	--	Yes	--	Yes	--
Di-N-Butyl Phthalate	µg/L	Yes	--	Yes	--	Yes	--
Fluoranthene	µg/L	Yes	--	Yes	--	Yes	--
Fluorene	µg/L	Yes	--	Yes	--	Yes	--
Isophorone	µg/L	Yes	--	Yes	--	Yes	--
Naphthalene	µg/L	Yes	--	Yes	--	Yes	--
Phenanthrene	µg/L	Yes	--	Yes	--	Yes	--
Pyrene	µg/L	Yes	--	Yes	--	Yes	--
Pesticides[1]							
Aldrin	µg/L	Yes	0	No	--	Yes	0
Alpha-BHC	µg/L	Yes	0	No	--	Yes	0
Aroclor 1016	µg/L	Yes	0	No	--	Yes	0
Aroclor 1221	µg/L	Yes	0	No	--	Yes	0
Aroclor 1232	µg/L	Yes	0	No	--	Yes	0
Aroclor 1242	µg/L	Yes	0	No	--	Yes	0
Aroclor 1248	µg/L	Yes	0	No	--	Yes	0
Aroclor 1254	µg/L	Yes	0	No	--	Yes	0
Aroclor 1260	µg/L	Yes	0	No	--	Yes	0
Beta-BHC	µg/L	Yes	0	No	--	Yes	0
Delta-BHC	µg/L	Yes	0	No	--	Yes	0
Dieldrin	µg/L	Yes	0	No	--	Yes	0

Table 21 Industrial Wastewater Monitoring Program for the Palos Verdes Landfill (continued)

Constituent	Units	Permit 11561 (SB3)		Permit 10995 (SB4)		Permit 11695 (SB5)	
		Monitoring Parameter	Limitation	Monitoring Parameter	Limitation	Monitoring Parameter	Limitation
Endosulfan I	µg/L	Yes	0	No	--	Yes	0
Endosulfan II	µg/L	Yes	0	No	--	Yes	0
Endosulfan Sulfate	µg/L	Yes	0	No	--	Yes	0
Endrin	µg/L	Yes	0	No	--	Yes	0
Endrin Aldehyde	µg/L	Yes	0	No	--	Yes	0
Heptachlor	µg/L	Yes	0	No	--	Yes	0
Heptachlor Epoxide	µg/L	Yes	0	No	--	Yes	0
Lindane (Gamma-BHC)	µg/L	Yes	0	No	--	Yes	0
pp'-DDD	µg/L	Yes	0	No	--	Yes	0
pp'-DDE	µg/L	Yes	0	No	--	Yes	0
pp'-DDT	µg/L	Yes	0	No	--	Yes	0
Technical Chlordane	µg/L	Yes	0	No	--	Yes	0
Toxaphene	µg/L	Yes	0	No	--	Yes	0

[1] Permit Nos. 11561 and 11695, which became effective on January 23, 2015, no longer required pesticide analysis.
mg/L - milligrams per liter
µg/L - micrograms per liter
COD - chemical oxygen demand
TTO - total toxic organics
"≥" - greater than or equal to; "--" - no permit limit

Table 22 Industrial Wastewater Summary of Sampling Results

Constituents[a]	Units	First Five-Year Review Period (7/1/1994-12/31/2006)				Second Five-Year Review Period (1/1/2007-12/31/2013)				Third Five-Year Review Period (1/1/2014-12/31/2018)				Limit	% Criterion[b]
		No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND		
General Parameters															
pH	pH units	171	5.94	8.42	0	102	6.6	8.74	0	24	6.6	8	0	≥6	0
Sulfide, Soluble	mg/L	170	<0.1	9	168	101	<0.1	0.2	96	30	<0.1	<0.1	30	0.1	0
Total Suspended Solids	mg/L	390	<10	3440	4	191	<25	687	1	60	23	515	0	--	--
COD	mg/L	389	31	2630	0	192	<10	1570	1	60	265	1050	0	--	--
Cyanide, Total	mg/L	148	<0.002	0.11	110	67	<0.005	0.0182	53	20	<0.005	0.0077	19	1.2	0
Metals															
Arsenic	mg/L	115	0.0011	2.33	0	66	<0.1	0.14	16	20	0.03	0.12	0	3	0
Cadmium	mg/L	115	<0.002	0.26	28	66	<0.0005	0.0486	21	20	<0.005	0.02	14	0.69	0
Chromium	mg/L	115	<0.01	0.51	61	66	<0.02	0.0333	22	20	<0.02	0.02	14	2.77	0
Copper	mg/L	115	<0.008	0.15	31	66	<0.04	0.086	23	20	<0.02	<0.04	16	3.38	0
Lead	mg/L	115	<0.0004	0.03	97	66	<0.00025	0.01	52	20	<0.015	0.04	18	0.69	0
Mercury	mg/L	114	<0.0001	0.0004	95	64	<0.00004	0.00011	60	20	<0.00005	<0.0005	20	2	0
Nickel	mg/L	115	<0.02	1.51	1	66	0.099	1.84	0	20	0.1	1.05	0	3.98	0
Silver	mg/L	115	<0.0004	0.0059	111	66	<0.0002	0.00216	65	20	<0.01	<0.01	20	0.43	0
Zinc	mg/L	116	<0.01	3.28	3	65	0.1	1.41	0	20	0.07	0.89	0	2.61	0
Volatile Organic Compounds															
1,1,1-Trichloroethane	µg/L	171	<0.5	<50	171	104	<0.5	<100	104	30	<2.5	<25	30	--	--
1,1-Dichloroethane	µg/L	171	<0.3	16	125	104	<0.5	2	102	30	<2.5	<25	30	--	--
1,2-Dichloroethane	µg/L	171	<0.3	13	91	104	<0.5	31	100	30	<2.5	<25	27	--	--
Benzene	µg/L	171	<0.3	270	84	104	<0.5	51.2	91	30	<2.5	<25	30	--	--
Bromodichloromethane	µg/L	171	<0.5	8.9	163	104	<0.5	3	103	30	<2.5	<25	30	--	--
Bromoform	µg/L	171	<0.5	2	169	104	<0.5	<100	104	30	<2.5	<25	30	--	--
Chlorobenzene	µg/L	171	<0.5	252	64	104	<0.5	146	58	30	<5	49.5	9	--	--
Chloroform	µg/L	171	<0.5	40	153	104	<0.5	<100	104	30	<2.5	<25	29	--	--
Dibromochloromethane	µg/L	171	<0.5	6.7	164	104	<0.5	<100	104	30	<2.5	<25	30	--	--
Ethylbenzene	µg/L	171	<0.3	130	121	104	<0.5	32.6	99	30	<2.5	<25	29	--	--
Methylene Chloride	µg/L	171	<0.5	83	154	104	<0.5	33.6	94	30	<2.5	<25	30	--	--
1,2-Dichlorobenzene	µg/L	171	<0.5	10	147	105	<0.5	<100	105	30	<2.5	<25	30	--	--
1,4-Dichlorobenzene	µg/L	171	<0.5	64	105	105	<0.5	28.8	91	30	<2.8	<25	19	--	--
Tetrachloroethene	µg/L	171	<0.3	42	165	104	<0.5	61.4	103	30	<2.5	<25	30	--	--
Toluene	µg/L	171	<0.3	130	131	104	<0.5	3	102	30	<2.5	<25	30	--	--
trans-1,2-Dichloroethene	µg/L	171	<0.3	2.8	150	104	<0.5	1.5	102	30	<2.5	<25	30	--	--

Table 22 Industrial Wastewater Summary of Sampling Results (continued)

Constituents[(a)]	Units	First Five-Year Review Period (7/1/1994-12/31/2006)				Second Five-Year Review Period (1/1/2007-12/31/2013)				Third Five-Year Review Period (1/1/2014-12/31/2018)				Limit	% Criterion[(b)]
		No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND	No. Analyzed	Min	Max	No. ND		
Trichloroethene	µg/L	171	<0.3	70	130	104	<0.5	58.4	102	30	<2.5	<25	30	--	--
Vinyl Chloride	µg/L	171	<0.3	46	122	104	<0.5	7.2	102	30	<2.5	<25	29	--	--
IW Limit Exceedances for VOCs (Volatile TTO)	µg/L	171	0	802	--	104	0	300	--	30	5.8	61.2	7	--	--
Semivolatile Organic Compounds															
Acenaphthene	µg/L	168	<1	85	134	99	<5	<500	99	30	2.1	<50	28	--	--
Anthracene	µg/L	168	<1	4	159	99	<5	<500	99	30	<2	<50	30	--	--
Diethyl phthalate	µg/L	168	<1	3	155	99	<5	<500	99	30	<2	<50	30	--	--
bis(2-Ethylhexyl)phthalate	µg/L	168	<1	290	76	99	<20	179	82	30	<10	64	27	--	--
Di-n-butyl phthalate	µg/L	168	<1	1	167	99	<5	<500	99	30	<2	<50	30	--	--
Fluoranthene	µg/L	168	<1	5	160	99	<5	<500	99	30	<2	<50	30	--	--
Fluorene	µg/L	168	<1	32	142	99	<5	<500	99	30	<2	<50	29	--	--
Isophorone	µg/L	168	<1	9	150	99	<5	<500	99	30	<2	<50	30	--	--
Naphthalene	µg/L	167	<1	620	141	98	<5	33.3	97	30	<2	<50	29	--	--
Phenanthrene	µg/L	168	<1	23	146	99	<5	<500	99	30	<2	<50	29	--	--
Pyrene	µg/L	168	<1	17	159	99	<5	<500	99	30	<2	<50	30	--	--
IW Limit Exceedances for SVOCs (Semi -volatile TTO)	µg/L	168	0	915	--	99	0	190	--	30	13.6	64	25	--	--
Pesticides															
Aroclor 1242	µg/L	69	<0.1	73	63	50	<2	<200	50	14	<0.001	<20	14	0	0
Aroclor 1254	µg/L	69	<0.05	24	68	50	<2	<200	50	14	<0.001	<20	14	0	0
Aroclor 1260	µg/L	69	<0.1	8.1	68	50	<2	<200	50	14	<0.001	<20	14	0	0
gamma-BHC (Lindane)	µg/L	69	<0.01	<500	69	51	<20	<250	51	14	<0.00005	<200	14	0	0
4,4'-DDD	µg/L	68	<0.01	<500	68	29	<20	<250	29	14	<0.00005	<200	14	0	0
4,4'-DDE	µg/L	70	<0.01	11	64	29	<20	<250	29	14	<0.00005	<200	14	0	0
p,p'-DDT	µg/L	69	<0.01	<500	69	51	<20	<250	51	14	<0.00005	<200	14	0	0
Technical Chlordane	µg/L	67	<0.05	<500	67	45	<20	<250	45	14	<0.0005	<200	14	0	0

(a) Constituents list includes those tested during the first Five-Year Review Period (7/1/1994 – 12/31/2006), the second-Five Year Review period (1/1/2017 – 12/31/2013), and the third Five Year Review period (1/1/2014-12/31/2018)
(b) % criterion is the percentage of instances when permit limits were exceeded
ND – not detected; "-" – not applicable; "<" – less than detection limit
µg/L - micrograms per liter; mg/L – milligrams per liter
Min is the minimum detection limit. If the minimum detection limit is not available during the review period, Min is the minimum detected concentration.
Max is the maximum detected concentration. If the maximum detected concentration is not available, Max is the maximum detection limit during the review period.

6.5.3.2 METALS

Low concentrations of metals were frequently detected in the industrial wastewater samples (Table 22). There have been no exceedances of discharge limitations for metals during the third Five-Year Review period.

6.5.3.3 VOLATILE ORGANIC COMPOUNDS

The self-monitoring requirements of Permit Nos. 10995, 11561, and 11695, prescribe a limitation of 1,000 micrograms per liter (µg/L) for Volatile Total Toxic Organics (Volatile TTO). The Volatile TTO for a sample is the summation of the detected concentrations of methylene chloride, chloroform, 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, bromo-dichloromethane, dibromochloromethane, bromoform, chlorobenzene, vinyl chloride, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,l-dichloroethane, 1,2-dichloroethane, benzene, toluene, ethylbenzene, and trans-1,2-dichloroethylene. For the purpose of this calculation, non-detect values and constituents that are not required to be tested are treated as zero. The Volatile TTO limitation was not exceeded during the third Five-Year Review period.

6.5.3.4 SEMI-VOLATILE ORGANIC COMPOUNDS

The self-monitoring requirements of Permit Nos. 10995, 11561, and 11695, prescribe a limitation of 1,000 micrograms per liter (µg/L) for Semi-volatile Total Toxic Organics (Semi-volatile TTO). The Semi-volatile TTO for a sample is the summation of the detected concentrations of acenaphthene, anthracene, diethyl phthalate, dimethyl phthalate, di-n-butyl phthalate, fluoranthene, fluorene, isophorone, naphthalene, phenanthrene, and pyrene. For the purpose of this calculation, non-detect values and constituents that are not required to be tested are treated as zero. There were no exceedances of the Semi-volatile TTO limitation during the third Five-Year Review period.

6.5.3.5 PESTICIDES

The self-monitoring requirements of Permit Nos. 11561 and 11695 prescribe that pesticides shall not be detected in the industrial wastewater. No pesticide compounds have been detected in third Five-Year Review period.

6.5.4 INDUSTRIAL WASTEWATER CONCLUSIONS

The site is currently in compliance with all Industrial Waste permit conditions and limitations.

7. RECOMMENDATIONS AND FOLLOW-UP ACTIONS

7.1 GROUNDWATER

Assessment of groundwater monitoring data indicate that concentrations of the site's constituents of concern have remained stable, undetected, or decreased during the third Five-Year Review period except for 1,4-dioxane at downgradient well M70B. The Sanitation Districts are in the process of installing a new extraction well in the eastern corner of the South Coast Botanic Garden, near existing extraction well E16 to mitigate the elevated 1,4-dioxane concentrations observed in well M70B. Overall, the groundwater monitoring data indicates that the groundwater containment system is functioning as intended in controlling the size and magnitude of the groundwater plumes. The groundwater directly downgradient of the site is not in a designated groundwater basin and its future use as a drinking water supply is unlikely due to limited aquifer thickness and naturally poor water quality. Nevertheless, the Sanitation Districts will continue to optimize operation and maintenance of the groundwater containment systems at the site to ensure ongoing control and containment of the groundwater plumes.

7.2 SURFACE AIR AND SUBSURFACE GAS

Continued operation, maintenance, and monitoring of the landfill gas systems are recommended.

7.3 STORM WATER

The site filed a Notice of Termination of coverage under the NPDES Industrial General Permit for Storm Water Discharges Associated with Industrial Activity, which was approved by the Regional Water Quality Control Board on July 24, 2015. Prior to the termination approval, the site was in compliance of all NPDES permit conditions and limitations. The site continues to inspect storm water management features to ensure erosion control. No follow-up actions are necessary.

7.4 INDUSTRIAL WASTE WATER

The site is in compliance of all industrial wastewater permit conditions and limitations. No follow-up actions are necessary.

8. PROTECTIVE STATEMENTS

In answering the questions posed for the technical assessment during the third Five-Year Review and as stated in the Five-Year Review Summary Form (Appendix C):

- The remedial systems are functioning as intended by the decision documents with respect to all media;
- The remedial action objectives used at the time of remedy selection are still valid; and

- No other information has come to light that call into question the protectiveness of the remedy.

9. NEXT REVIEW

The fourth Five-Year Review for the site will be conducted by June 2024, five years from the date of this review.

10. REFERENCES

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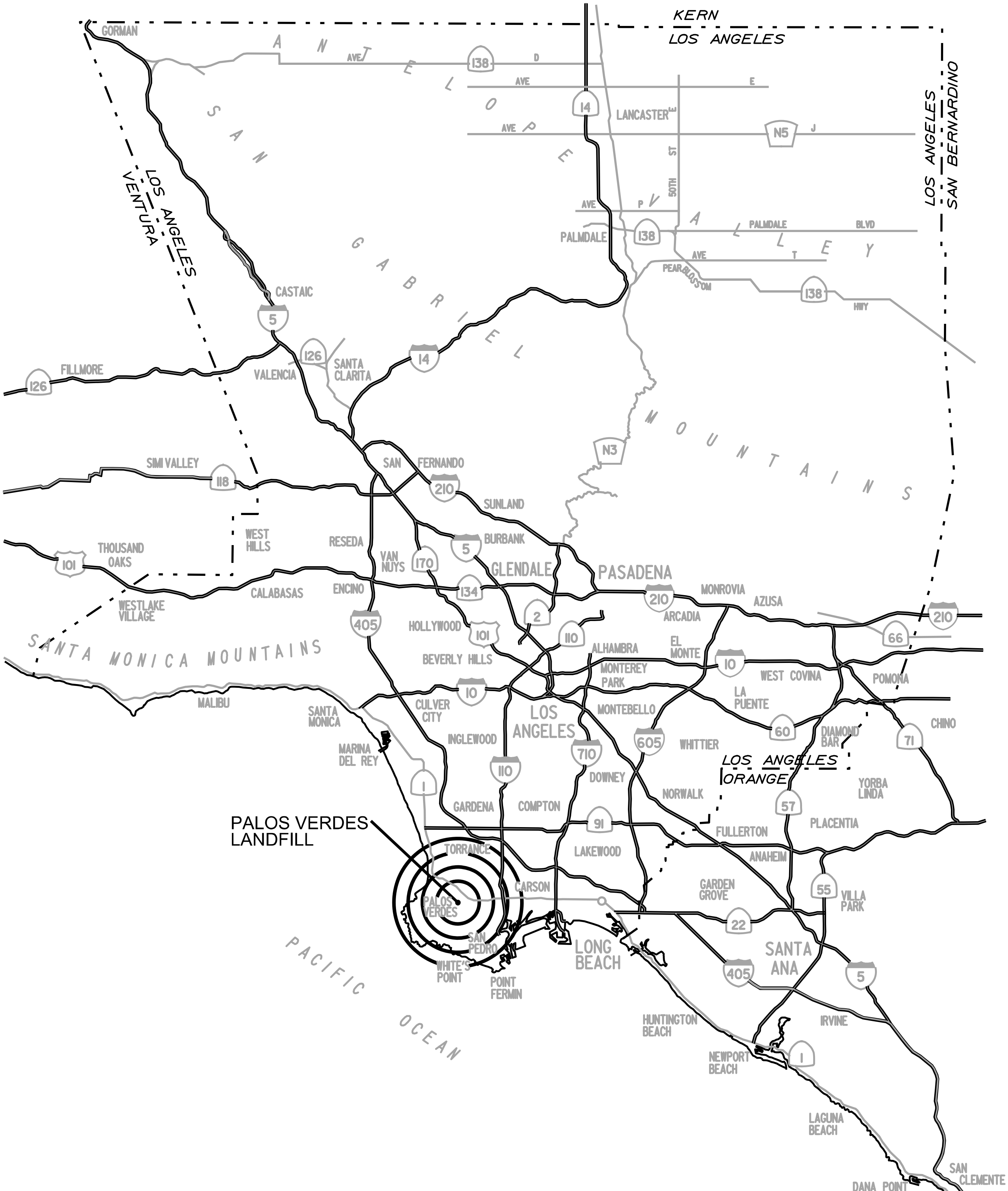
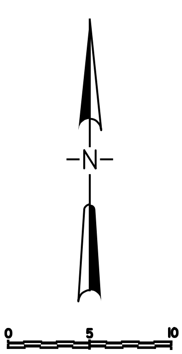
FIGURES





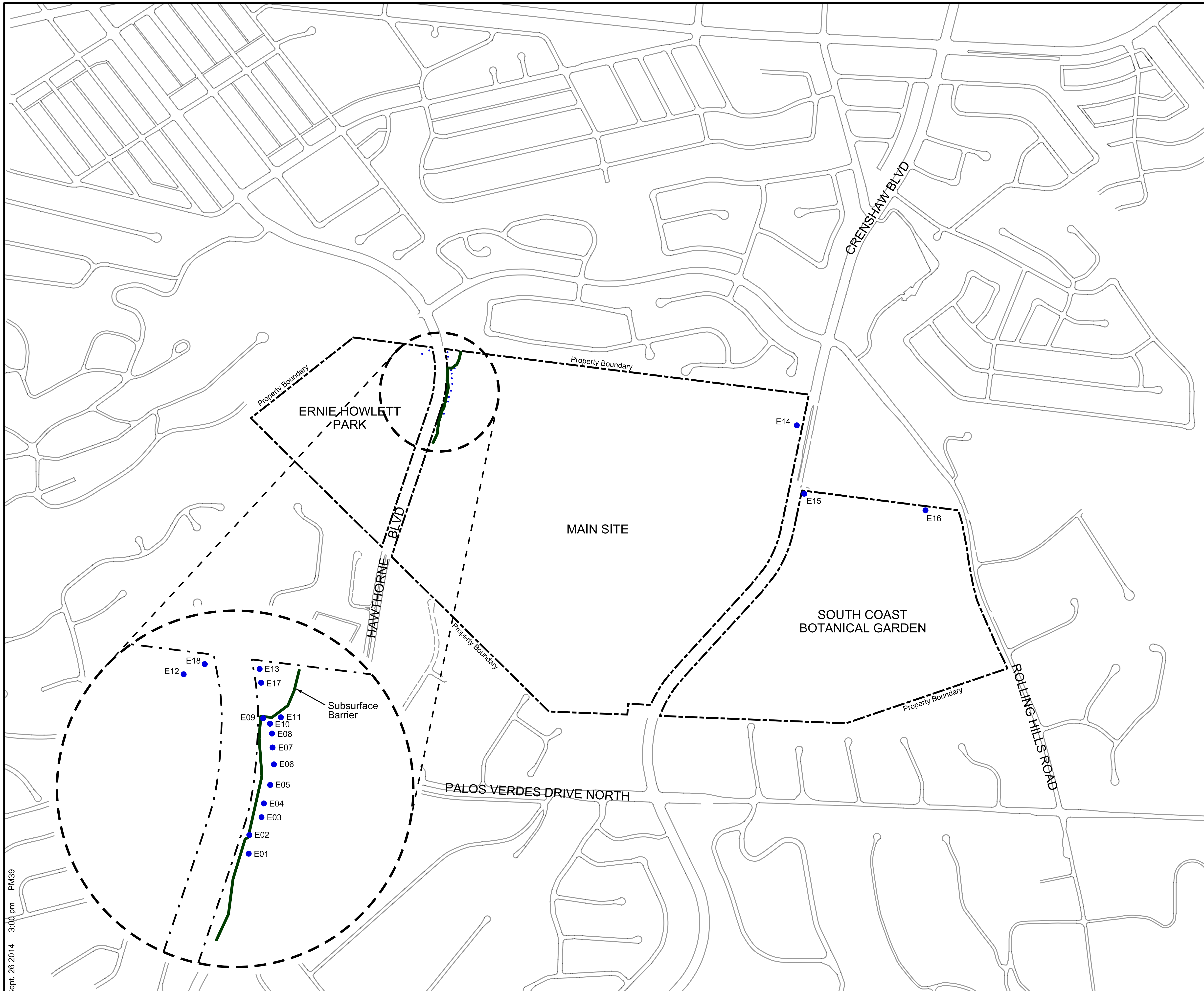
GENERAL LOCATION

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

Figure 1

n: \ lfm12 \ pv \ Groundwater \ pv Figure 01.dgn



Explanation

Subsurface Barrier

Property Boundary

Extraction Well

N

0' 250' 500' 1000'
GRAPHIC SCALE

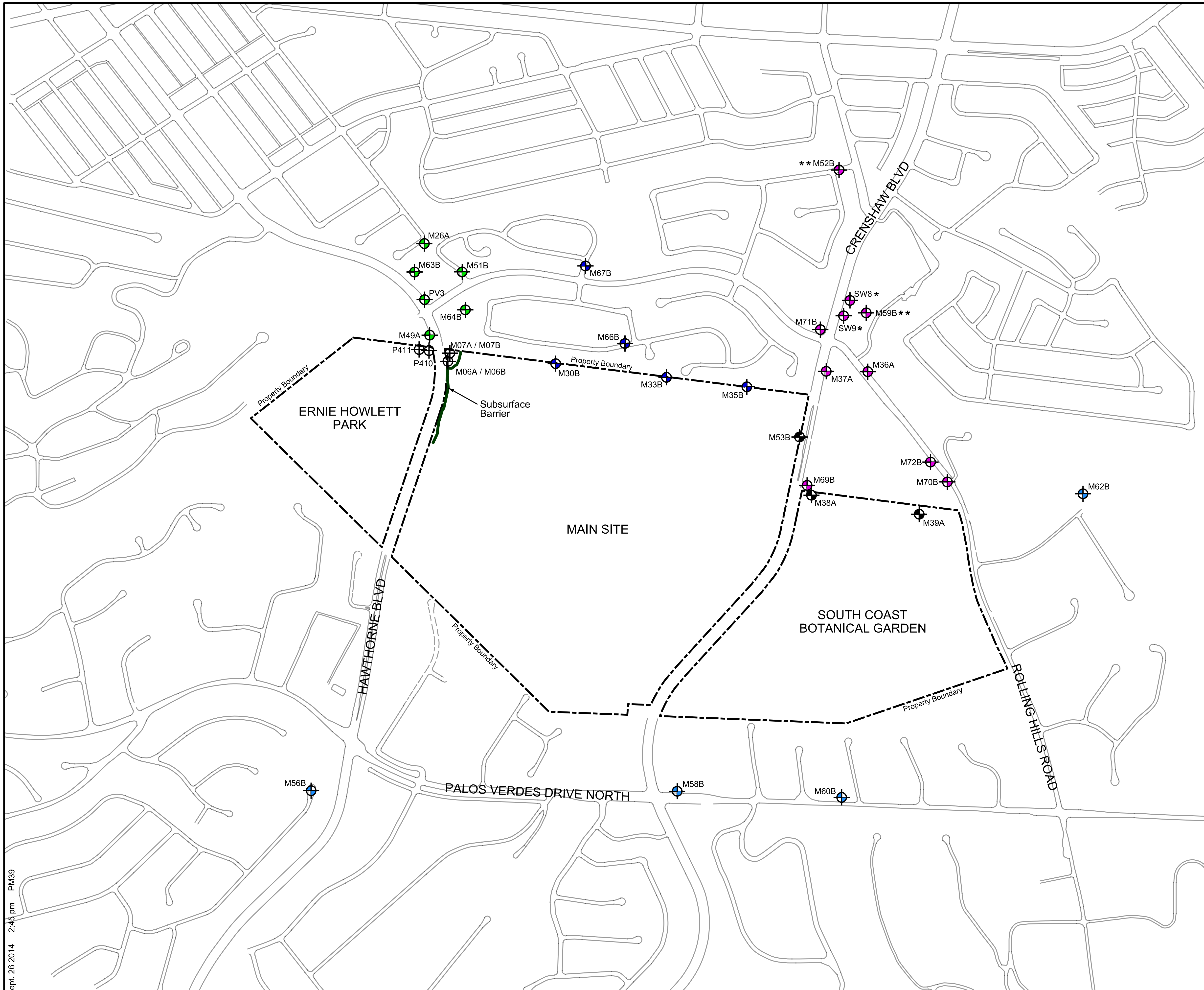
SITE LAYOUT AND
LOCATION OF GROUNDWATER
EXTRACTION WELLS

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

Figure 2

n: \ lfm12 \ pv \ Groundwater \ pv Figure 02.dgn



Explanation

- Subsurface Barrier
- Property Boundary
- Downgradient Well Along Crenshaw Blvd
- Downgradient Well Along Hawthorne Blvd
- Northeast Boundary Well
- Onsite Well Along Crenshaw Blvd
- Onsite Well Along Hawthorne Blvd
- Upgradient Well
- * Decommissioned on April 16, 2010
- ** Sampling Began Third Quarter, 2010

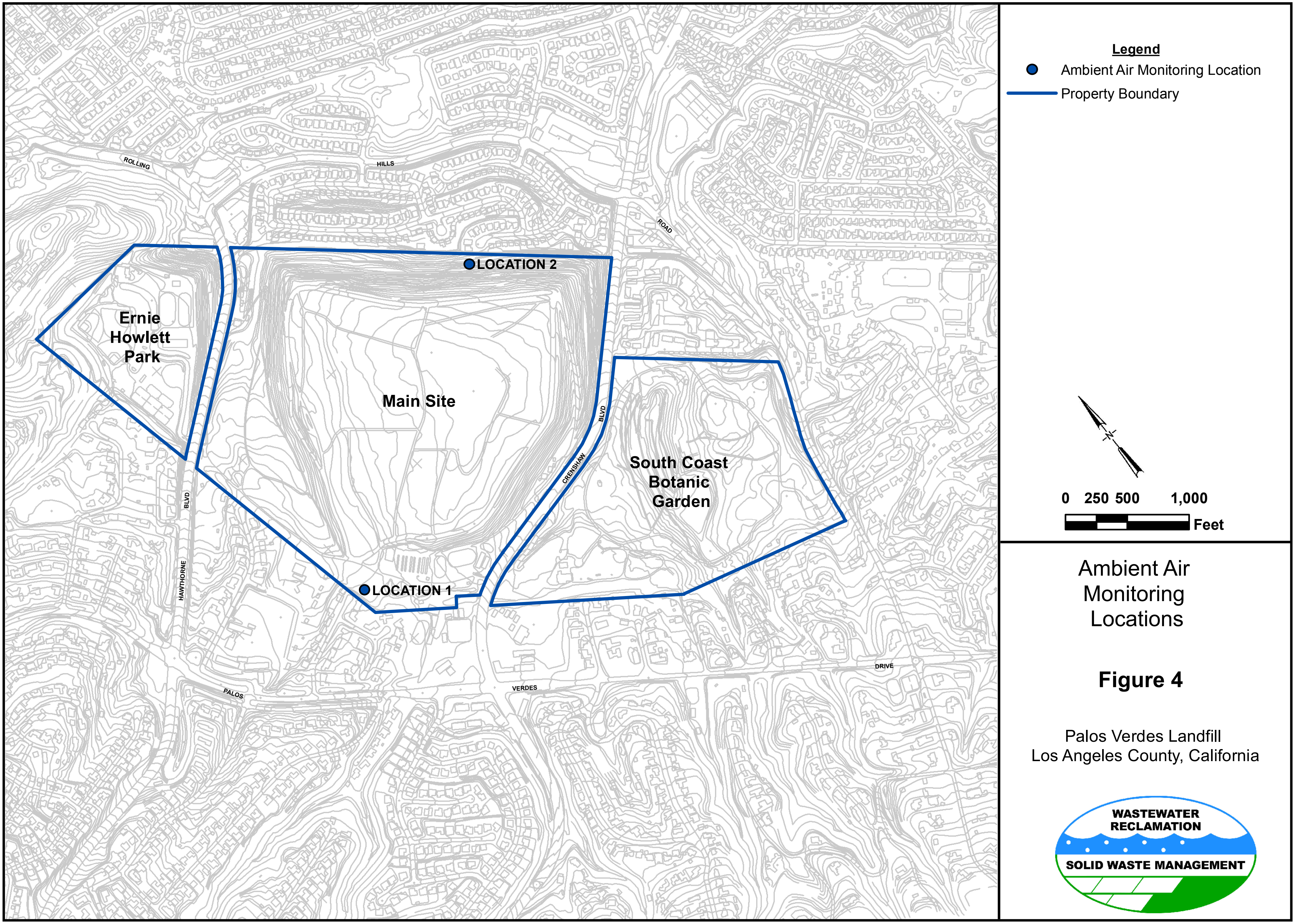
LOCATION OF GROUNDWATER MONITORING WELLS

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

Figure 3

n: \ lfm12 \ pv \ Groundwater \ pv Figure 03.dgn

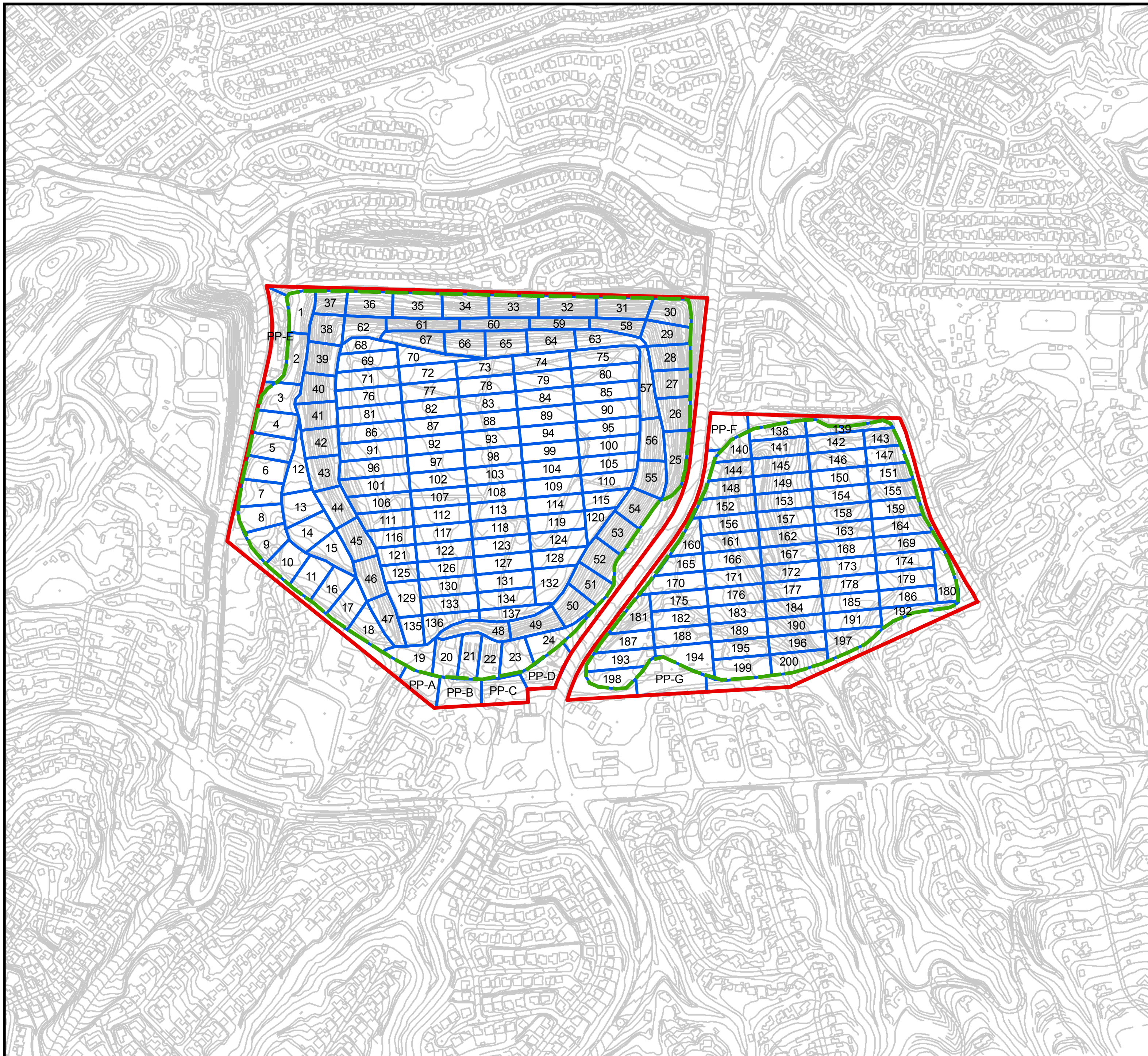


Ambient Air Monitoring Locations

Figure 4

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT



Legend

- Property Boundary
- Monitoring Grid
- Landfill Footprint

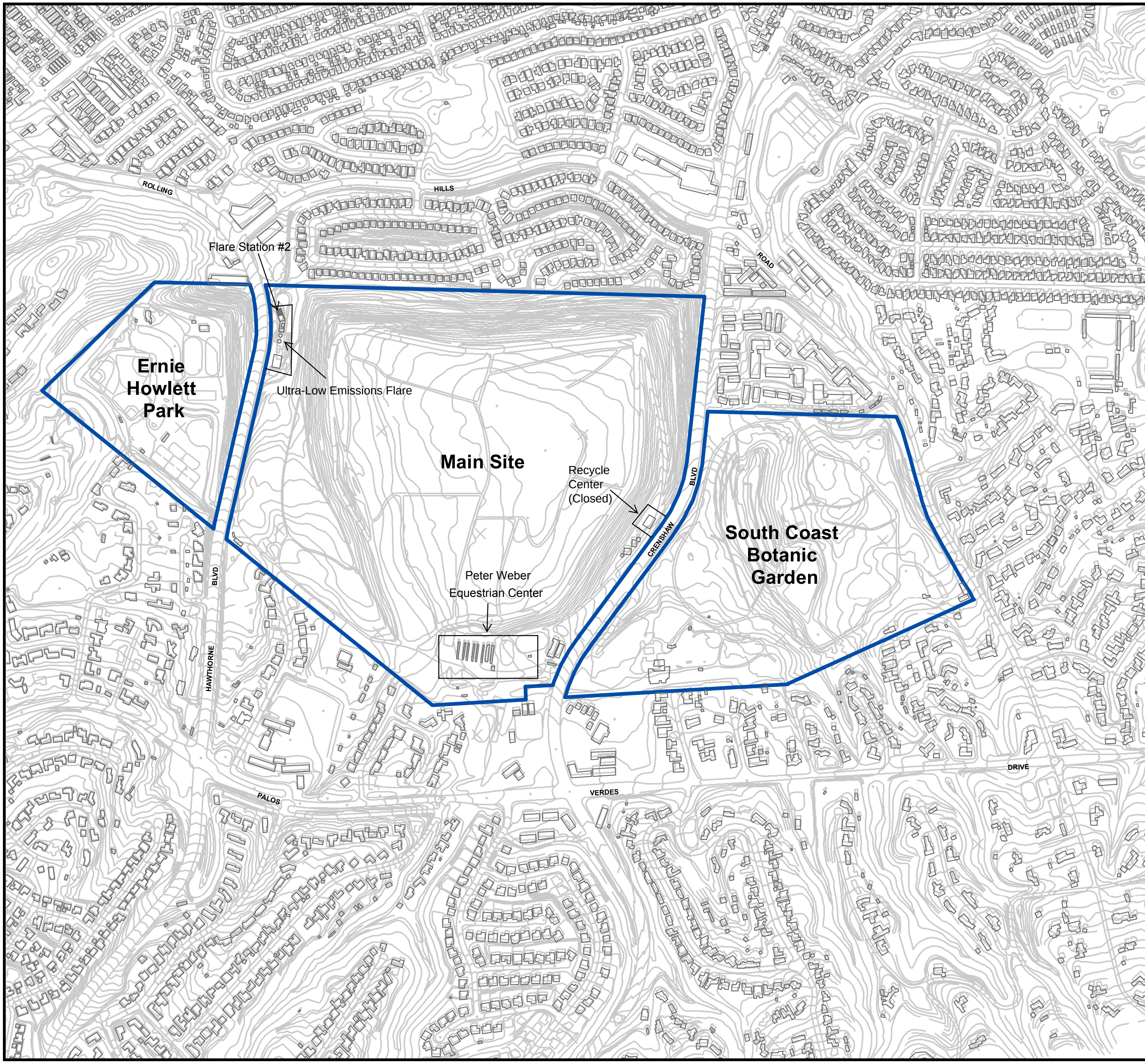
0 250 500 1,000 Feet

Integrated Surface Gas Monitoring Grids

Figure 5

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

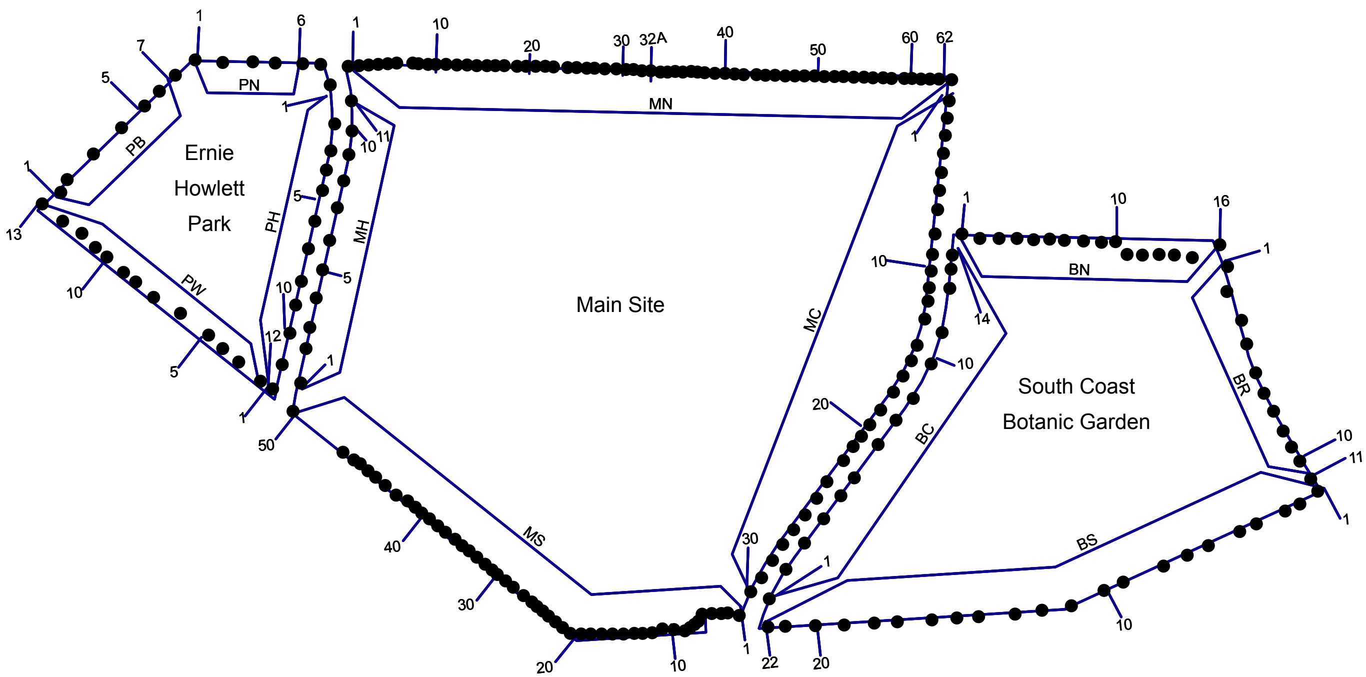


Ultra-Low Emissions Flare and Flare Station #2

Figure 6

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT



Legend

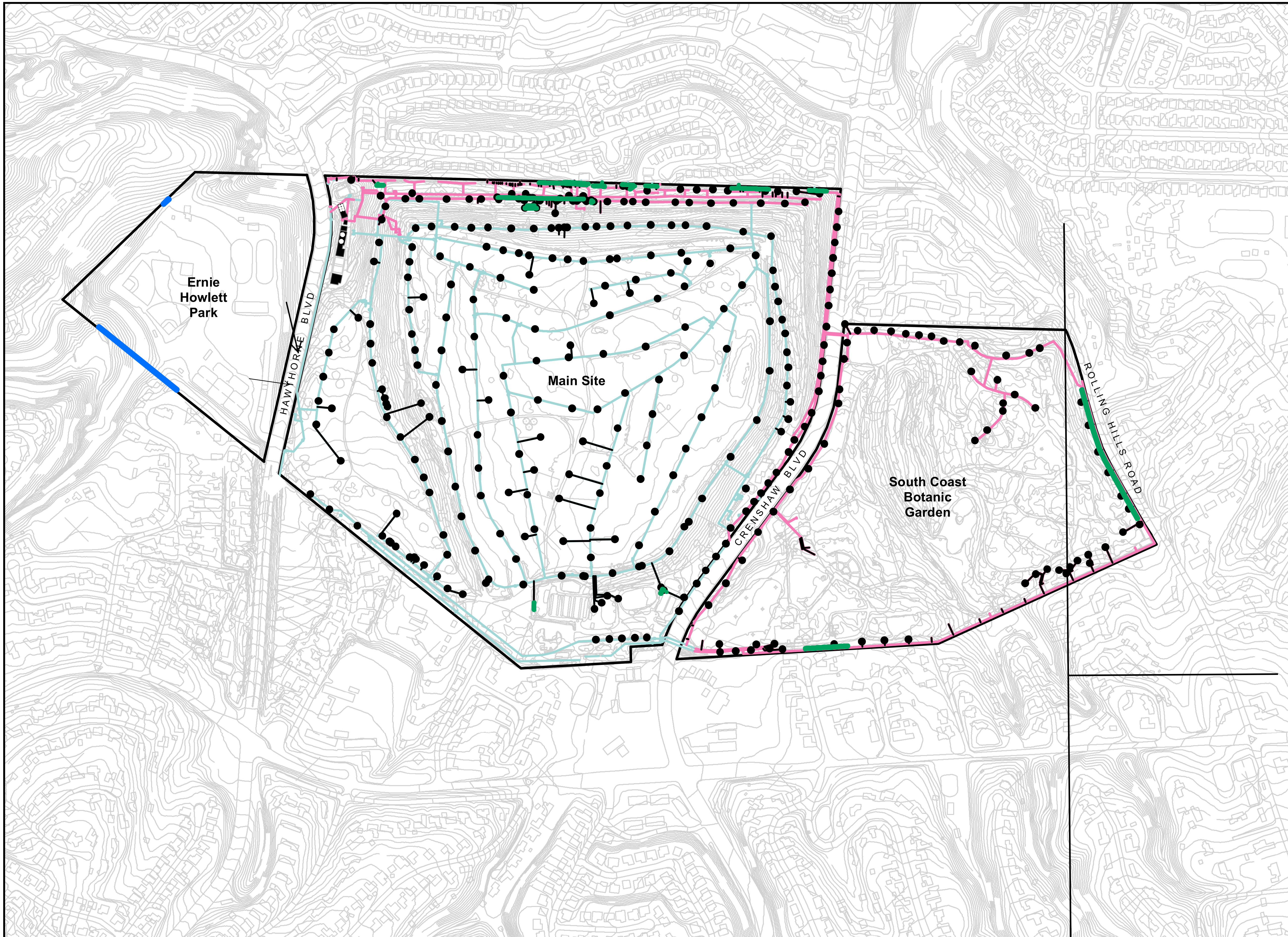
● Boundary Probe (showing numbering and name)

Boundary Probe Locations

Figure 7

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

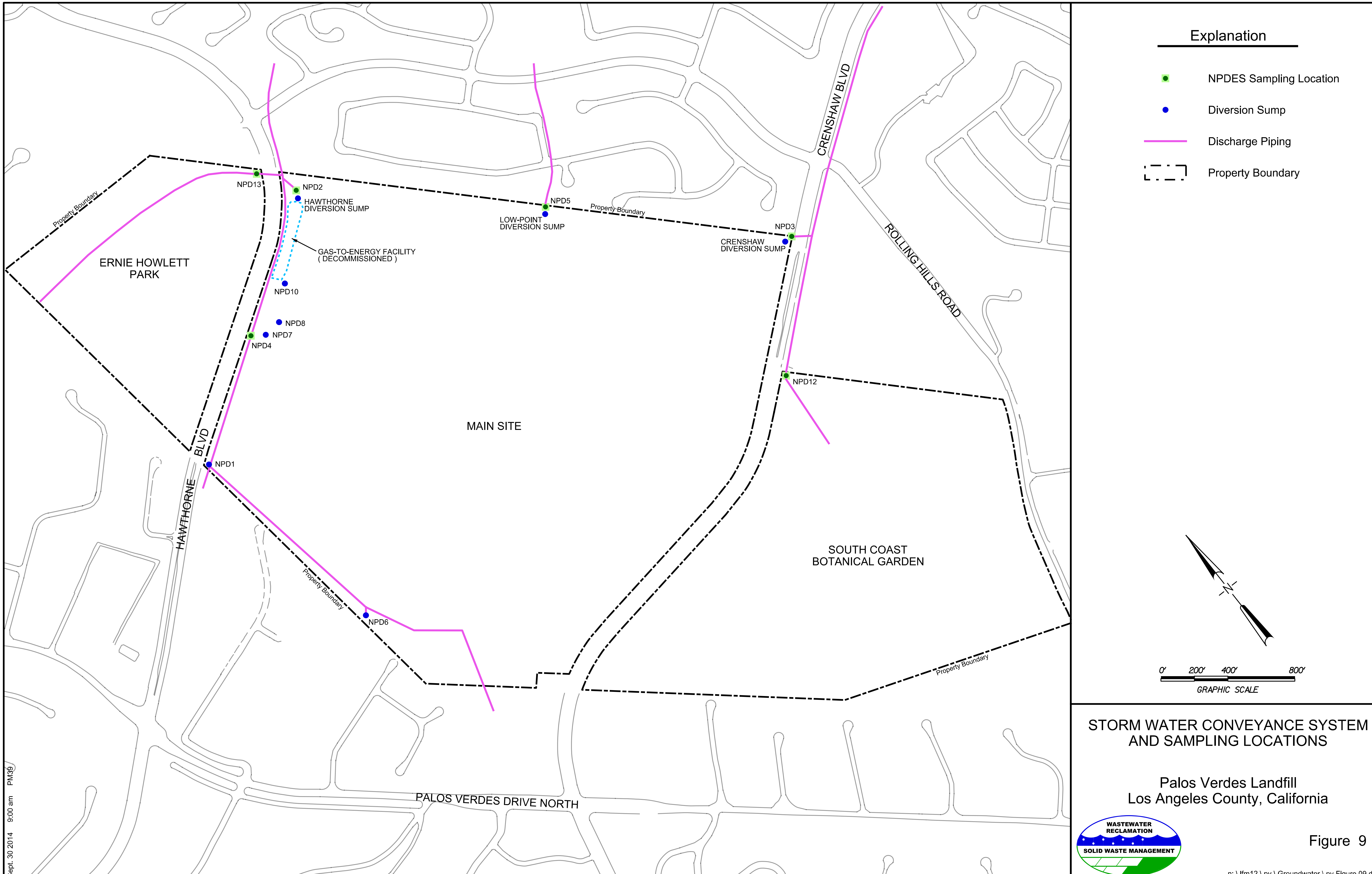


Landfill Gas
Extraction System

Figure 8

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT



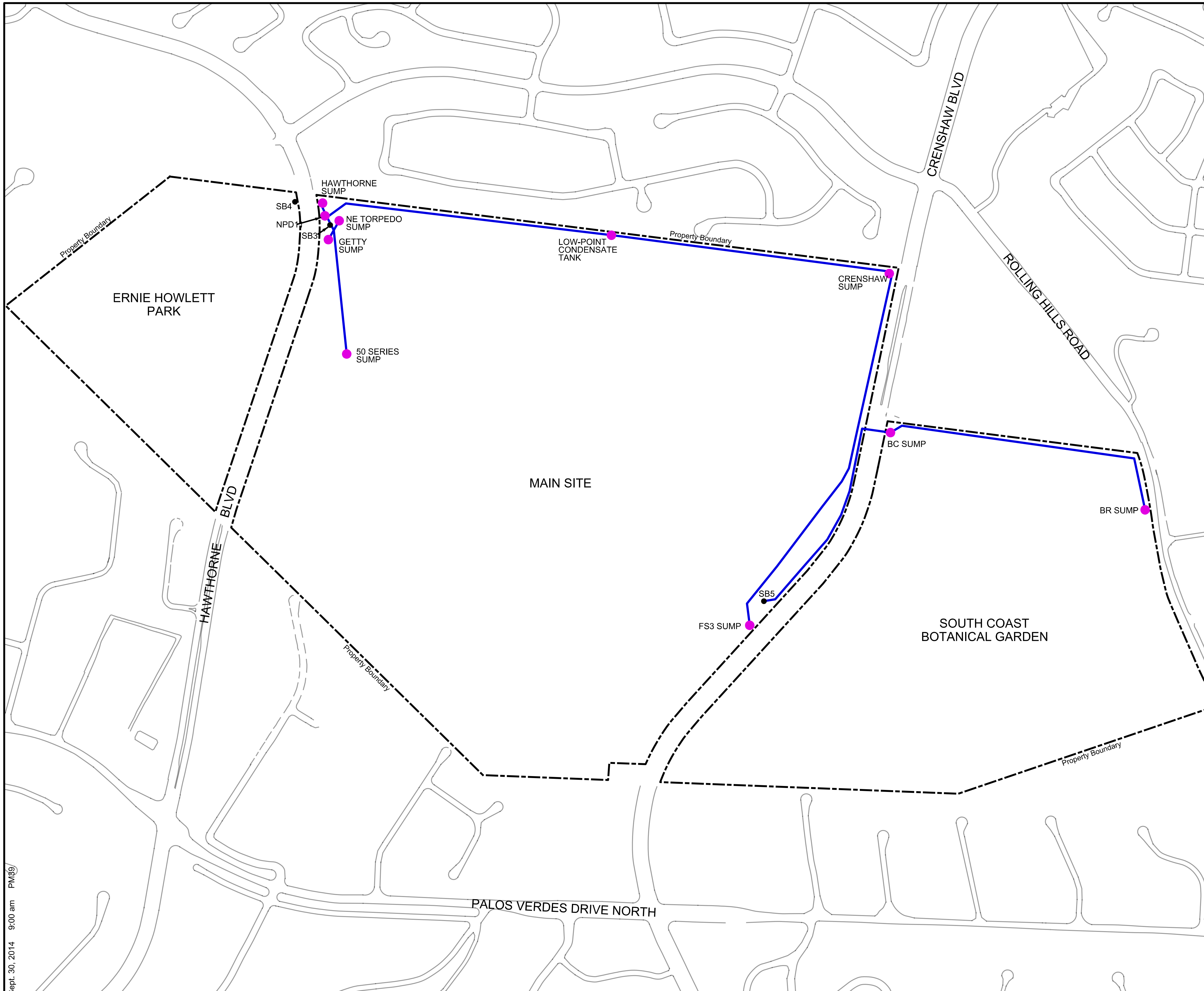
STORM WATER CONVEYANCE SYSTEM AND SAMPLING LOCATIONS

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

Figure 9

n: \ lfm12 \ pv \ Groundwater \ pv Figure 09.dgn



Explanation

- Collection Sump
- Condensate Line
- Property Boundary

N

0' 200' 400' 800'
GRAPHIC SCALE

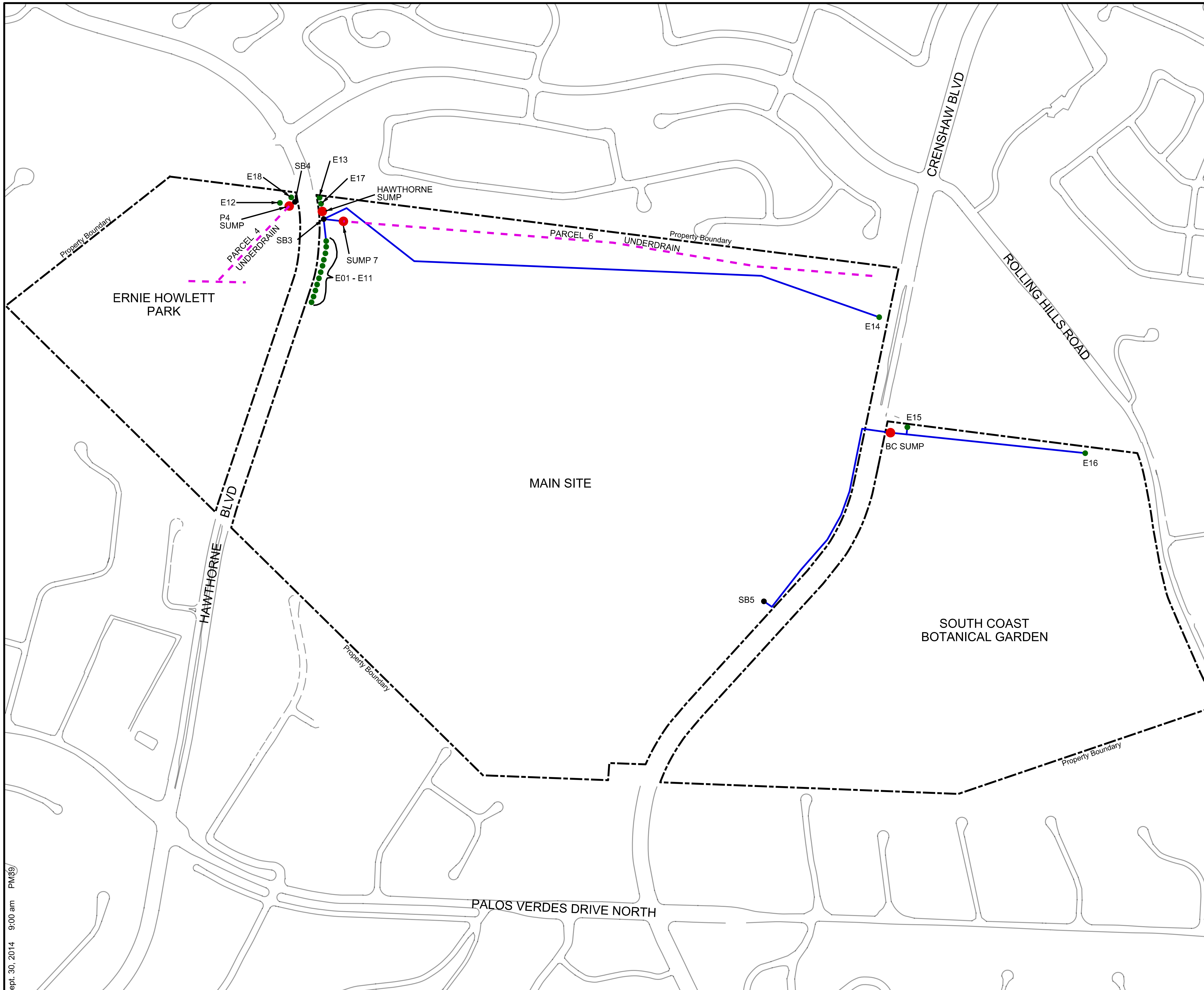
CONDENSATE COLLECTION SYSTEM
INDUSTRIAL WASTE

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

Figure 10

n: \ lfm12 \ pv \ Groundwater \ pv Figure 10.dgn



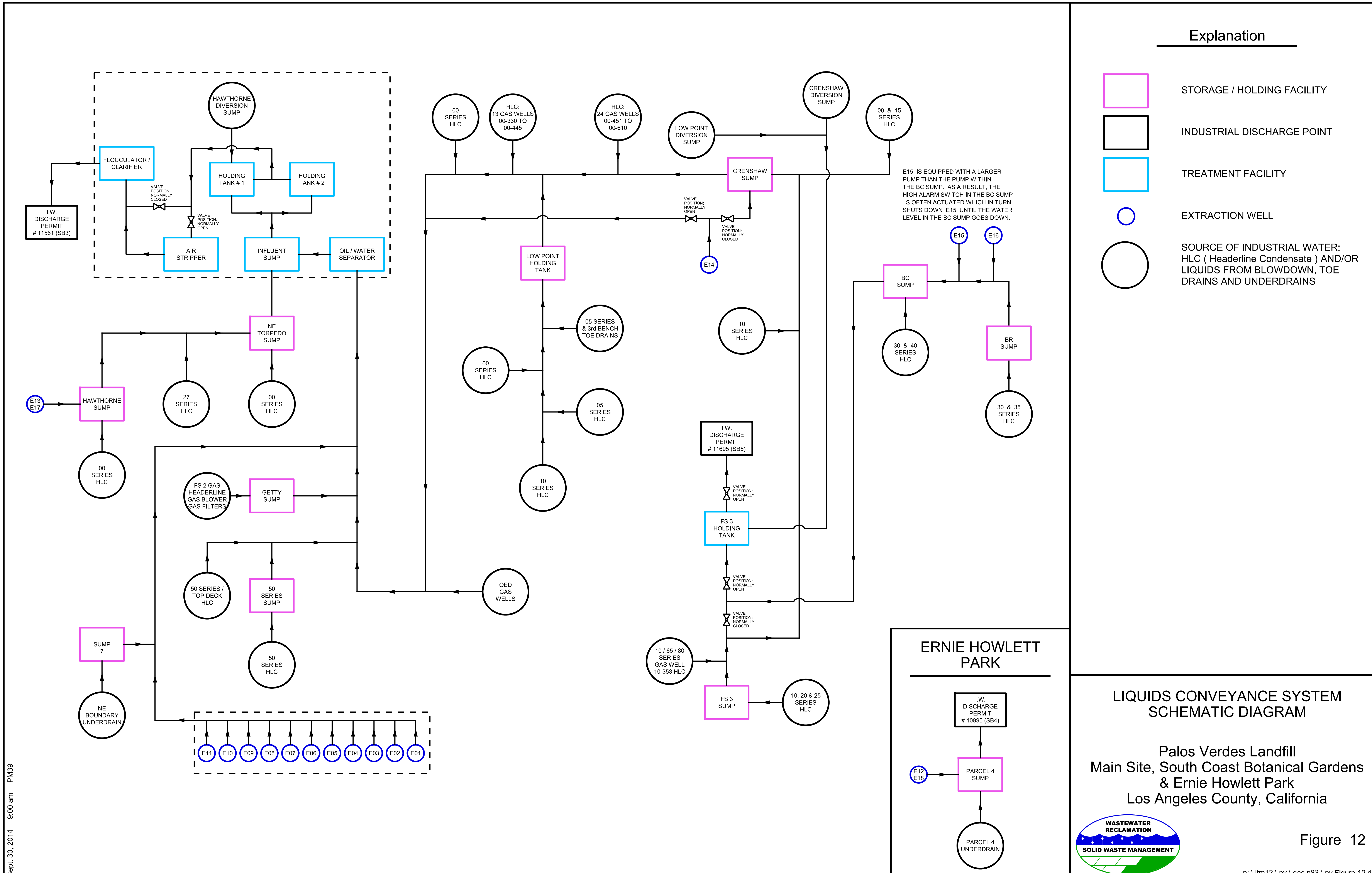
GROUNDWATER COLLECTION SYSTEM
INDUSTRIAL WASTE

Palos Verdes Landfill
Los Angeles County, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

Figure 11

n: \ lfm12 \ pv \ Groundwater \ pv Figure 11.dgn



LIQUIDS CONVEYANCE SYSTEM
SCHEMATIC DIAGRAM

Palos Verdes Landfill
Main Site, South Coast Botanical Gardens
& Ernie Howlett Park
Los Angeles County, California

Figure 12

APPENDIX A
FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

Palos Verdes Landfill Site Inspection Roster – May 8, 2019

Name	Agency or Firm	Address	Phone Number
Dan Zogaib	DTSC	5796 Corporate Ave. Cypress, CA 90630	714/484-5483
Kristen Ruffell	Sanitation Districts	1955 Workman Mill Road Whittier, CA 90601	562/699-7411
Rita Chang	Sanitation Districts	1955 Workman Mill Road Whittier, CA 90601	562/699-7411
KC Irwin	Sanitation Districts	25706 Hawthorne Blvd. Rolling Hills Estates, CA 90274	310/377-3514
Ethan Laden	Sanitation Districts	25706 Hawthorne Blvd. Rolling Hills Estates, CA 90274	310/373-9043

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Palos Verdes Landfill	**Date of inspection:** 5/08/2019
Location and Region: 25706 Hawthorne Blvd. Rolling Hills Estates, CA Los Angeles County	**EPA ID:** N/A
Agency, office, or company leading the five-year review: Department of Toxic Substances Control	**Weather/temperature:** Overcast/65°F
Remedy Includes: (Check all that apply) ☑Landfill cover/containment ☑Access controls ☑Institutional controls ☑Groundwater pump and treatment ☐Surface water collection and treatment ☑Other Gas control	☐Monitored natural attenuation ☑ Groundwater containment ☑Vertical barrier walls
Attachments: ☑Inspection team roster attached	☐Site map attached
II. INTERVIEWS (Check all that apply)	
1. **O&M site manager** Ethan Laden (Name) Senior Engineer (Title) 5/08/2019 (Date) Interviewed ☑at site ☐at office ☐by phone Phone no. 310/373-9043 Problems, suggestions; ☐Report attached No concerns noted. Site is in good condition and is well maintained.	
2. **O&M staff** KC Irwin (Name) Supervising Engineering Technician (Title) 5/08/2019 (Date) Interviewed ☑at site ☐at office ☐by phone Phone no. 310/377-3514 Problems, suggestions; ☐Report attached No concerns noted. Site is in good condition and is well maintained.	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency: South Coast Air Quality Control Board (AQMD)

	Name	Title	Date	Phone no.
Contact	Jason Aspell	Senior Enforcement Manager	7/02/19	909/396-2491

Problems; suggestions; ☐ Report attached Per email from AQMD: (1) The AQMD is unaware of any compliance / engineering issues or incidents related to the site that have not been resolved promptly and appropriately and (2) The AQMD has no additional comments, suggestions, or recommendations regarding the site's management and operation.

Agency: Los Angeles County Fire Department –Battalion 14

	Name	Title	Date	Phone no.
Contact	David Jones	Engineer	5/09/19	310/377-9523

Problems; suggestions; ☐ Report attached Not aware of any compliance issues or incidents related to the site and has no additional comments, suggestions, or recommendations regarding the site's management and operation.

4. **Other interviews** (optional) ☐Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
☑ O&M manual ☑ Readily available ☑ Up to date ☐ N/A
☑ As-built drawings ☑ Readily available ☑ Up to date ☐ N/A
☑ Maintenance logs ☑ Readily available ☑ Up to date ☐ N/A
Remarks Work request logs document repairs and maintenance. Work also documented in internal monthly reports.

2. **Site-Specific Health and Safety Plan** ☑ Readily available ☑ Up to date ☐ N/A
☑ Contingency plan/emergency response plan ☑ Readily available ☑ Up to date ☐ N/A
Remarks Environmental H&S Plan, Districts' Emergency Procedures, PVLF Emergency Action and Fire Prevention Plan

3. **O&M and OSHA Training Records** ☑ Readily available ☑ Up to date ☐ N/A
Remarks O&M records and schedule for OSHA training at PVLF site, personnel training records maintained at Joint Administration Office in Whittier

4. **Permits and Service Agreements**
☑ Air discharge permit ☑ Readily available ☑ Up to date ☐ N/A
☑ Effluent discharge ☑ Readily available ☑ Up to date ☐ N/A
☑ Waste disposal, POTW ☑ Readily available ☑ Up to date ☐ N/A
☐ Other permits _________ ☐ Readily available ☐ Up to date ☐ N/A
Remarks DTSC and Sanitation Districts' O&M Agreement

5. **Gas Generation Records** ☑ Readily available ☑ Up to date ☐ N/A
Remarks Paper and electronic

6. **Settlement Monument Records** ☑ Readily available ☑ Up to date ☐ N/A
Remarks Maintained at Joint Administration Office in Whittier

7. **Groundwater Monitoring Records** ☑ Readily available ☑ Up to date ☐ N/A
Remarks Maintained at Joint Administration Office in Whittier

8. **Leachate Extraction Records** ☐ Readily available ☐ Up to date ☑ N/A
Remarks ____

9. **Discharge Compliance Records**
☑ Air ☑ Readily available ☑ Up to date ☐ N/A
☑ Water (effluent and surface water) ☑ Readily available ☑ Up to date ☐ N/A
Remarks Regulatory reports provided

10. **Daily Access/Security Logs** ☑ Readily available ☑ Up to date ☐ N/A
Remarks____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☑ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other

2. **O&M Cost Records**

☑ Readily available ☑ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate N/A ☐ Breakdown attached

Total annual cost by year for review period if available

	From (Date)		To (Date)	Total cost	
From	1/1/2014	To	12/31/2014	$3,542,000	☑ Breakdown in report
From	1/1/2015	To	12/31/2015	$2,314,000	☑ Breakdown in report
From	1/1/2016	To	12/31/2016	$2,218,000	☑ Breakdown in report
From	1/1/2017	To	12/31/2017	$2,335,000	☑ Breakdown in report
From	1/1/2018	To	12/31/2018	$2,435,000	☑ Breakdown in report

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: No unusually high O&M costs during review period.

V. ACCESS AND INSTITUTIONAL CONTROLS ☑ Applicable ☐N/A

A. Fencing

1. **Fencing damaged** None noted ☐ Location shown on site map ☑ Gates secured ☐ N/A

Remarks Fencing in good condition.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks Public access to Ernie Howlett Park and South Coast Botanic Garden, limited public access to Main Site, numerous signs posted that note public and restricted access areas, signs posted on hazardous materials (paints, gasoline, diesel, etc.) in storage areas. Landfill staff onsite during regular business hours five days per week. Cameras operated at the main gate off Hawthorne Boulevard and at the treatment area.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☑ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☑ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) self-reporting
Frequency varies by media
Responsible party/agency LACSD is responsible party for all media. Lead agency responsible for groundwater is DTSC, for gas and air is SCAQMD, for wastewater is LACSD, and for storm water was RWQCB.

Contact	Dan Zogaib	Hazardous Substances Engineer	5/08/19	714-484-5483
	Name	Title	Date	Phone no.

Reporting is up-to-date ☑ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☑ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☑ Yes ☐No ☐ N/A
Violations have been reported ☑ Yes ☐ No ☐ N/A
Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☑ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☑ No vandalism evident
Remarks

2. **Land use changes on site** ☐N/A
Remarks The recycling center closed in March 2017.

3. **Land use changes off site** ☑ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☑ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☑ Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks ____

VII. LANDFILL COVERS ☑ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☑ Settlement not evident
   Areal extent______________ Depth____________
   Remarks Soil stockpile available to fill any low spots when necessary.

2. **Cracks** ☐ Location shown on site map ☑ Cracking not evident
   Lengths____________ Widths___________ Depths__________
   Remarks____

3. **Erosion** ☐ Location shown on site map ☑ Significant Erosion not evident
   Areal extent______________ Depth____________
   Remarks Minor erosion noted during inspection

4. **Holes** ☐ Location shown on site map ☑ Large holes not evident
   Areal extent______________ Depth____________
   Remarks Gopher holes noted but no settlement holes

5. **Vegetative Cover** ☐Grass ☑ Cover properly established ☑ No signs of stress
   ☑ Trees/Shrubs
   Remarks Stopped watering of grass cover due to severe drought condition. Scattered shrubs and trees are more densely planted on slopes and perimeter areas for visual barrier.

6. **Alternative Cover (armored rock, concrete, etc.)** ☑ N/A
   Remarks____

7. **Bulges** ☐ Location shown on site map ☑ Bulges not evident
   Areal extent______________ Height____________
   Remarks No bulges observed at time of site inspection

8. **Wet Areas/Water Damage** ☑ Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent______________
☐ Ponding ☐ Location shown on site map Areal extent______________
☐Seeps ☐ Location shown on site map Areal extent______________
☐ Soft subgrade ☐ Location shown on site map Areal extent______________
Remarks No wet areas or water damage observed at time of site inspection

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☑ No evidence of slope instability
Areal extent______________
Remarks No slope instability observed during site inspection.

B. Benches ☑ Applicable ☐ N/A
Remarks Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.

1. **Flows Bypass Bench** ☐ Location shown on site map ☑N/A or okay
Remarks______________

2. **Bench Breached** ☐ Location shown on site map ☑ N/A or okay
Remarks______________

3. **Bench Overtopped** ☐ Location shown on site map ☑ N/A or okay
Remarks______________

C. Letdown Channels ☑ Applicable ☐ N/A
Remarks Channel lined with erosion control mats, riprap, sand bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.

1. **Settlement** ☐ Location shown on site map ☑ No evidence of settlement
Areal extent______________ Depth____________
Remarks______________

2. **Material Degradation** ☐ Location shown on site map ☑ No evidence of degradation
Material type______________ Areal extent______________
Remarks______________

3. **Erosion** ☐ Location shown on site map ☑ No evidence of significant erosion
Areal extent______________ Depth____________
Remarks______________

4. **Undercutting** ☐ Location shown on site map ☑ No evidence of undercutting
Areal extent______________ Depth____________
Remarks____

5. **Obstructions** Type_____________________ ☑ No obstructions
☐ Location shown on site map Areal extent______________
Size____________
Remarks____

6. **Excessive Vegetative Growth** Type____________________
☑ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent______________
Remarks____

D. Cover Penetrations ☑ Applicable ☐ N/A

1. **Gas Vents** ☑ Active ☑ Passive
☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks Passive trench on Ernie Howlett Park, all other gas extraction wells are active.

2. **Gas Monitoring Probes**
☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks____
____

3. **Monitoring Wells** (within surface area of landfill)
☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition
☐ Evidence of leakage at penetration ☐Needs Maintenance ☐ N/A
Remarks____
____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐Functioning ☐Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐Needs Maintenance ☑ N/A
Remarks____
____

5. **Settlement Monuments** ☑ Located ☑ Routinely surveyed ☐ N/A
Remarks____

E. Gas Collection and Treatment	☑ Applicable	☐ N/A
1.	**Gas Treatment Facilities** ☑ Flaring ☐ Thermal destruction ☐ Collection for reuse ☑ Good condition ☐ Needs Maintenance Remarks Due to declining methane concentration at the Palos Verdes Landfill, a new flare was installed and the Gas-to Energy Facility was decommissioned in October 2011.	
2.	**Gas Collection Wells, Manifolds and Piping** ☑ Good condition ☐ Needs Maintenance Remarks______	
3.	**Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings) ☑ Good condition ☐ Needs Maintenance ☐ N/A Remarks Perimeter gas probes more densely spaced based on proximity to homes.	
F. Cover Drainage Layer	☐ Applicable	☑ N/A
1.	**Outlet Pipes Inspected** ☐ Functioning ☑ N/A Remarks______	
2.	**Outlet Rock Inspected** ☐ Functioning ☑ N/A Remarks______	
G. Detention/Sedimentation Ponds	☐ Applicable	☑ N/A
1.	**Siltation** Areal extent______ Depth______ ☑ N/A ☐ Siltation not evident Remarks______	
2.	**Erosion** Areal extent______ Depth______ ☑ Erosion not evident Remarks______	
3.	**Outlet Works** ☐ Functioning ☑ N/A Remarks______	
4.	**Dam** ☐ Functioning ☑ N/A Remarks______	

H. Retaining Walls ☑ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☑ Deformation not evident
Horizontal displacement_____________ Vertical displacement________________
Rotational displacement_____________
Remarks Small (~4 foot) retaining wall at Gas-to-Energy facility

2. **Degradation** ☐Location shown on site map ☑ Degradation not evident
Remarks____

I. Perimeter Ditches/Off-Site Discharge ☑ Applicable ☐ N/A

1. **Siltation** ☐Location shown on site map ☑ Siltation not evident
Areal extent_______________ Depth_____________
Remarks____

2. **Vegetative Growth** ☐ Location shown on site map ☑ N/A
☐ Vegetation does not impede flow
Areal extent_______________ Type_____________
Remarks____

3. **Erosion** ☐ Location shown on site map ☑ Erosion not evident
Areal extent_______________ Depth_____________
Remarks____

4. **Discharge Structure** ☑ Functioning ☐ N/A
Remarks____

VIII. VERTICAL BARRIER WALLS ☑ Applicable ☐ N/A

1. **Settlement** ☐ Location shown on site map ☑Settlement not evident
Areal extent_______________ Depth_____________
Remarks____

2. **Performance Monitoring** Type of monitoring Groundwater quality
☐ Performance not monitored
Frequency_________________________________ ☐ Evidence of breaching
Head differential___________________________
Remarks Groundwater monitoring wells downgradient of subsurface barrier

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☐N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☑ Good condition ☑ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks__________
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☑ Good condition ☐ Needs Maintenance Remarks__________
3. **Spare Parts and Equipment** ☑ Readily available ☑ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks__________
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☐ N/A
1. **Collection Structures, Pumps, and Electrical** ☑ Good condition ☐ Needs Maintenance Remarks Dry-weather diversion systems are in place to collect non-storm water discharges.
2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☑ Good condition ☐Needs Maintenance Remarks__________
3. **Spare Parts and Equipment** ☑ Readily available ☑ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks__________

C. Treatment System ☑ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
☐Metals removal ☑ Oil/water separation ☐ Bioremediation
☑ Air stripping ☐ Carbon adsorbers
☐ Filters____________________
☐ Additive (*e.g.*, chelation agent, flocculent)____________________
☑Others clarifier
☑Good condition ☐ Needs Maintenance
☑ Sampling ports properly marked and functional
☑ Sampling/maintenance log displayed and up to date
☑Equipment properly identified
☑Quantity of groundwater treated annually 12,000 to 30,000 gpd, capacity 100 to 200 gpm
☐ Quantity of surface water treated annually N/A
Remarks____________________

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A ☑ Good condition ☐ Needs Maintenance
Remarks____________________

3. **Tanks, Vaults, Storage Vessels**
☐ N/A ☑ Good condition ☐Proper secondary containment ☐ Needs Maintenance
Remarks____________________

4. **Discharge Structure and Appurtenances**
☐ N/A ☑Good condition ☐Needs Maintenance
Remarks____________________

5. **Treatment Building(s)**
☐ N/A ☑Good condition (esp. roof and doorways) ☐ Needs repair
☑ Chemicals and equipment properly stored
Remarks____________________

6. **Monitoring Wells** (pump and treatment remedy)
☑ Properly secured/locked ☑Functioning ☑ Routinely sampled ☑Good condition
☑ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks____________________

D. Monitoring Data

1. Monitoring Data
☑Is routinely submitted on time ☑ Is of acceptable quality

2. Monitoring data suggests:
☑ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☑N/A
Remarks____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The groundwater remedial system is intended to control groundwater contamination from the site. Assessment of groundwater monitoring data indicate that concentrations of the site's constituents of concern have remained stable, undetected, or decreased during the third Five-Year Review period except for 1,4-dioxane at downgradient well M70B along Crenshaw Boulevard, which was detected at levels between 10 µg/L and 25.5 µg/L. Aside from 1,4-dioxane, virtually all of the constituents of concern evaluated remain undetected or have decreased since the Remedial Investigation. Overall, the data indicate that the remedial systems are functioning as intended in mitigating downgradient groundwater impacts from the site. In addition, the groundwater directly downgradient of the site is not in a designated groundwater basin and its future use as a drinking water supply is unlikely due to limited aquifer thickness and naturally poor water quality. As such, the groundwater containment systems have been effective in containing these plumes and are protective of human health and the environment.

The landfill gas control system is intended to prevent the emission of gas into the air and the lateral migration of gas outside the perimeter of the site. Monitoring of surface air and subsurface gas demonstrate that the extensive landfill gas control system at the site provides effective containment. Analytical results of surface air and subsurface gas confirm that the landfill gas control system at the site is adequate and protective of human health and the environment.

In association with the storm water and the industrial wastewater regulatory compliance programs, assessments of the sampling data reported during the third Five-Year Review period indicate that the site was in full compliance with the National Pollutant Discharge Elimination System General Permit for storm water and the Industrial Wastewater Discharge Permits for industrial wastewater.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

O&M activities are adequate to ensure that the systems are operating as designed and functioning to control potential migration of landfill gas contaminants in groundwater and landfill-related contaminants

	in industrial wastewater.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. There have been no unexpected changes in the scope or cost of O&M or the frequency of unscheduled repairs that suggest the protectiveness of the remedy may be compromised in the future.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. The Sanitation Districts will continue to optimize operation and maintenance of the groundwater containment systems at the site to ensure ongoing control and containment of the groundwater plumes.

APPENDIX B
GROUNDWATER SUMMARY TABLES VOCS AND 1,4-DIOXANE

TABLE B-1
Benzene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	1	<125	23.22	34	30	<10	<50	16.58	19	20	13.8	25.8	18.04	1	0
M06B	83	3	<250	41.21	14	29	<0.5	<50	17.24	17	21	16	29	23.22	0	0
M07A	86	<0.3	990	76.42	27	29	<2.5	<25	7.11	29	19	<2.5	<12.5	3.16	17	0
M07B	55	0.7	27	3.17	35	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<0.5	<50	2.35	55	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.3	<50	3.81	44	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	3	0.23	103	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	2.15	36	29	<0.5	<10	2.03	22	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.3	1	0.22	75	36	<0.5	<2.5	0.31	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.13	53	31	<0.5	<25	4.54	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.3	4	0.47	51	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.3	<50	1.98	80	31	<0.5	<50	8.23	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.39	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	1.7	0.23	84	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.25	84	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.22	53	28	<0.5	<2.5	0.36	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	73	1.57	52	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	16	0.45	90	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	89	0.2	89	1.37	84	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.3	1	0.2	33	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.17	31	18	<0.5	<0.5	0.25	18	24	<0.5	0.72	0.32	20	16.67*
M69B	55	0.8	<25	2.21	23	29	<0.5	<10	1.51	22	20	<0.5	<2.5	0.55	11	0
M70B	55	<0.3	<5	0.62	50	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.3	<5	0.41	43	29	<0.5	<10	0.8	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.37	42	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	1.48	24	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	0.5	<10	1.59	17	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	52.2	12.03	6	30	<0.5	10	4.15	6	24	<0.5	6.2	3.56	4	0
Upgradient Wells																
M56B	79	<0.3	<1	0.21	78	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	69	<0.3	<2.5	0.24	69	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	67	<0.3	<5	0.29	67	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.25	63	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

*Detections of BTEX compounds (benzene, toluene, ethyl benzene, and xylene) in well M59B appear to be from a local source unrelated to the landfill.
Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.
Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.
Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-2
Bromodichloromethane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	9.65	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	10.89	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<100	4.59	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.78	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<50	2.32	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	3.96	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.27	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.2	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.4	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.13	90	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.46	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.29	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.31	84	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.35	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.46	89	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.52	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.66	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	0.99	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.81	86	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.39	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.29	79	30	<0.5	<5	0.46	29	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.34	67	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.37	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.32	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.
Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.
Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-3
Bromoform

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	9.65	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	10.91	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<100	4.65	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.83	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<50	2.35	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	4	54	31	<5	<50	10.89	31	21	<2.5	<25	5.3	20	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.27	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.2	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<2	0.3	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.45	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<2	0.33	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.15	90	31	<1	<50	8.24	31	26	<2.5	<10	2.12	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.46	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<2	0.29	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.32	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<2	0.33	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.35	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.43	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.56	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.67	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.49	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.47	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	1.08	82	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.77	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.41	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<2	0.3	79	30	<0.5	<5	0.39	29	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.34	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.38	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.33	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-4
Bromomethane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<2	<500	31.11	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<2	<500	38.14	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<1	<250	15.18	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<1	<200	6.55	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<100	6.06	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<1	<200	8.53	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.5	<20	1.15	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<50	2.86	81	29	<0.5	<10	2.03	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<20	1.1	76	36	<0.5	<10	0.57	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<50	3.51	54	31	<0.5	<25	4.69	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<10	0.87	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<100	4.24	90	31	<2.5	<50	8.39	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.5	<20	1.22	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.5	<20	1.09	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.5	<20	1.12	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<10	0.94	54	28	<0.5	<10	0.53	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<25	1	55	31	<0.5	<10	0.4	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.5	<20	1.07	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.5	<20	1.22	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<2.5	1.02	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<1	<2.5	1.1	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	3.38	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<20	1.4	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<20	1.31	44	29	<0.5	<10	0.97	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<10	0.97	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	2.01	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.5	<20	1.86	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<100	5.06	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<20	0.99	79	30	<0.5	<10	0.48	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<20	0.96	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<10	0.96	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<20	1.02	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-5
Carbon Tetrachloride

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<0.6	<125	8.52	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	9.1	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.3	<62.5	3.57	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.51	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<0.5	<50	2	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.3	<50	3.67	53	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.2	103	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	<25	1.07	81	29	<0.5	<10	1.87	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.3	<1	0.21	76	36	<0.5	<2.5	0.31	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.12	54	31	<0.5	<25	4.54	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.3	<1	0.21	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	1.94	88	31	<0.5	<50	8.23	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.39	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.21	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.24	84	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.2	54	28	<0.5	<2.5	0.36	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.22	55	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.27	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.35	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	0.6	0.19	30	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.3	<25	1.26	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.3	<5	0.56	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.3	<5	0.39	44	29	<0.5	<10	0.8	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.36	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.3	<25	0.9	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.65	86	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.3	<10	1.04	67	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.3	<1	0.21	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<2.5	0.24	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.28	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.23	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-6
Chlorobenzene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<10	1400	499.23	3	30	258	829	620.73	0	20	399	831	578.9	0	5
M06B	83	<10	1300	568.61	1	29	7	568	388.34	0	21	438	787	681.48	0	95.24
M07A	86	0.8	1300	136.44	12	29	<2.5	70.6	22.82	12	19	14.8	81.7	48.06	0	10.53
M07B	55	<1	33	3.67	37	28	<5	<25	5.22	28	21	0.95	<10	3.08	20	0
P410	84	19	66.1	39.82	0	29	4.1	44	31.21	0	21	<2.5	35.6	5.73	7	0
P411	54	<0.5	100	7	27	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.27	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	5.3	26	29	2.5	<10	4.87	9	19	<0.5	5.6	2.84	3	0
M51B	76	<0.5	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.7	40	31	0.6	<25	4.58	29	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.5	<50	2.53	58	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.46	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.29	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	0.3	<2.5	0.32	83	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.35	54	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.35	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.58	68	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	7	28	18.12	2	29	2.4	32.3	23.47	0	20	18.2	26.5	21.75	0	0
M70B	55	<0.5	<5	0.92	41	30	2	8.1	3.92	4	22	3.7	6.5	5.11	0	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	2	31	14.6	2	29	<5	37.2	24.67	1	20	24.2	30.4	26.37	0	0
M39A	87	<0.1	<10	0.84	81	29	0.5	<12.5	4.11	23	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.73	53	30	<0.5	<5	1.82	17	24	0.5	5.3	2.81	5	12.5
Upgradient Wells																
M56B	79	<0.5	<1	0.29	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.33	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.37	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.32	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-7
Chloroethane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<2	<500	31.51	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	0.7	<500	38.23	82	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<1	<250	14.95	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.5	<200	6.2	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<100	5.78	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<1	<200	8.32	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.5	<20	0.94	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<50	2.66	81	29	<0.5	<10	1.95	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<20	1.05	76	36	<0.5	<5	0.43	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<50	3.38	54	31	<0.5	<25	4.61	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<2.5	0.73	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<100	4.18	90	31	<2.5	<50	8.31	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.5	<20	1.11	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.5	<20	0.89	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.5	<20	0.95	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<2.5	0.71	54	28	<0.5	<5	0.44	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<25	0.98	55	31	<0.5	<5	0.32	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.5	<20	1	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.5	<20	1.03	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<2.5	1.02	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<1	<2.5	1.1	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	3.46	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<20	1.35	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<20	1.26	44	29	<0.5	<10	0.88	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.83	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	1.94	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.5	<20	1.86	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<100	5.19	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<20	0.88	79	30	<0.5	<5	0.4	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<20	0.93	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.85	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<20	0.97	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-8
Chloroform

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	230	12.44	81	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	10.89	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<100	4.59	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.78	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<50	2.41	83	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	4.08	53	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.28	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.26	79	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.4	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.23	87	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.47	86	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	2	0.31	84	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.33	84	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.36	89	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	0.2	5.3	0.49	87	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.52	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.66	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	1.01	78	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	0.2	<10	0.83	82	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.39	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.3	79	30	<0.5	5	0.49	29	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.62	48	29	<0.5	<5	1.33	12	20	<0.5	<2.5	0.85	19	0
M60B	68	<0.5	<5	0.37	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	2.8	0.5	54	32	<0.5	3	0.49	21	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-9
Chloromethane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<2	<500	31.92	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<500	38.69	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<1	<250	15.11	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.5	<200	6.37	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<100	6.12	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<1	<200	8.91	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.5	<20	1.15	90	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<50	2.94	81	29	<0.5	<10	2.03	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<20	1.11	76	36	<0.5	<10	0.57	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<50	3.55	54	31	<0.5	<25	4.69	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<10	0.88	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<100	4.32	90	31	<2.5	<50	8.39	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.5	<20	1.25	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.5	<20	1.09	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.5	<20	1.13	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<10	0.96	54	28	<0.5	<10	0.53	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<25	1.06	55	31	<0.5	<10	0.4	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.5	<20	1.11	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.5	<20	1.24	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<2.5	1.02	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<1	<2.5	1.1	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	3.54	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<20	1.43	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<20	1.36	44	29	<0.5	<10	0.97	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<10	1.03	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	2.07	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.5	<20	1.98	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<100	5.26	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<20	1	79	30	<0.5	<10	0.48	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<20	0.99	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<10	0.98	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<20	1.04	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-10
2-Chloroethylvinyl ether

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<2	<250	20.87	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<2.5	<500	23.49	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<1	<250	10.35	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	3.93	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<100	3.9	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<1	<50	5.07	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.5	<10	0.62	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.86	81	29	<0.5	<10	2.03	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<10	0.54	76	36	<0.5	<10	0.57	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	2.01	54	31	<0.5	<25	4.69	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<10	0.63	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.79	90	31	<2.5	<50	8.39	31	26	<2.5	<20	2.31	26	0
Northeast Boundary Wells																
M30B	87	<0.5	<10	0.73	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.5	<10	0.6	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.5	<10	0.61	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<10	0.72	54	28	<0.5	<10	0.53	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<10	0.58	55	31	<0.5	<10	0.4	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.5	<10	0.61	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.5	<10	0.77	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<1	0.49	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<1	<1	0.5	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	2.04	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<10	0.92	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<10	0.68	44	29	<0.5	<10	0.97	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<10	0.77	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	1.35	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.5	<10	1.16	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<20	2.42	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	77	<0.5	<10	0.59	77	30	<0.5	<10	0.48	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<10	0.54	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<10	0.68	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<10	0.58	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-11
Dibromochloromethane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	9.65	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	10.89	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<100	4.59	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.78	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<50	2.32	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	3.96	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.27	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.2	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.4	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.13	90	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.46	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.29	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.31	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.35	90	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.44	88	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.63	51	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.66	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	1.08	73	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.8	86	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.39	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.29	79	30	<0.5	5	0.49	29	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.33	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.37	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.32	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.
Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.
Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-12
1,3-Dichlorobenzene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	80	<1	<125	11.84	79	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	80	<0.5	<250	12.96	80	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	83	<0.5	<125	6.15	83	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	52	<0.5	<25	2.79	52	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	81	<1	<50	2.43	81	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	51	<0.5	<50	4.24	51	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	100	<0.5	<1	0.27	100	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	77	<0.5	<25	1.25	77	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.4	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	87	<0.5	<50	2.21	87	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	83	<0.5	<5	0.47	83	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	82	<0.5	<1	0.29	82	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	80	<0.5	<2.5	0.31	80	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	87	<0.5	<5	0.35	87	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	86	<0.5	<5	0.43	86	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.52	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.66	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	79	<0.5	<25	1.04	79	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	83	<0.5	<10	0.79	83	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.39	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.29	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.33	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.37	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.32	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-13
1,2-Dichlorobenzene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	1.1	<135	12.11	76	30	<10	<50	13.85	20	20	10.2	<25	13.77	1	0
M06B	83	<1.2	<250	13.14	76	29	<0.5	<50	12.18	27	21	7.2	17.5	14.02	0	0
M07A	86	<0.5	<125	6.13	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.5	<25	2.82	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<50	2.43	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	4.07	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	100	<0.5	<1	0.27	100	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	80	<0.5	<25	1.29	80	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.4	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	91	<0.5	<100	2.7	91	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	85	<0.5	<5	0.47	85	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	84	<0.5	<1	0.29	84	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	82	<0.5	<5	0.34	82	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	89	<0.5	<5	0.35	89	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	88	<0.5	<5	0.43	88	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	0.6	<25	2.48	30	29	0.5	10.5	4.89	3	20	3.6	5.7	4.75	0	0
M70B	55	<0.5	<5	0.67	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	81	<0.5	<25	1.49	37	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	85	<0.5	<10	0.78	85	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.4	67	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.29	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.33	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.37	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.32	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-14
1,4-Dichlorobenzene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	80	<2.5	<125	23.11	32	30	25.6	85	56.44	2	20	48.8	90.5	63.68	0	5
M06B	80	<2.5	<250	24.05	32	29	0.5	<50	26.23	10	21	32.2	76.1	66.3	0	95.24
M07A	83	<0.5	<125	6.87	69	29	<2.5	<25	7.11	29	19	<2.5	<12.5	3.04	18	0
M07B	52	<0.5	<25	2.79	52	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	81	<1	<50	2.44	80	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	51	<0.5	<50	4.24	51	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	100	<0.5	<1	0.27	100	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	78	<0.5	<25	1.25	78	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.41	53	31	<0.5	<25	4.56	30	20	0.93	<5	1.17	15	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	88	<0.5	<50	2.31	87	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	83	<0.5	<5	0.47	83	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	82	<0.5	<1	0.3	81	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	80	<0.5	<2.5	0.31	80	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	87	<0.5	<5	0.35	87	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	86	<0.5	<5	0.44	85	32	<0.5	<10	1.17	22	22	<0.5	0.63	0.32	17	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	7	<25	13.61	2	29	2.1	36.8	18.69	0	20	16.5	21.9	18.63	0	0
M70B	55	<0.5	<5	0.66	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	79	2.7	34	11.01	1	29	11	27.4	14.46	0	20	11	14.8	12.88	0	0
M39A	83	<0.5	<10	0.85	76	29	<0.5	<12.5	3.6	28	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.93	53	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.74	16	0
Upgradient Wells																
M56B	79	<0.5	<1	0.29	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.33	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.37	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.32	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-15
1,1-Dichloroethane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006) No. Analyzed	Min	Max	Average	No. ND	Second Five-Year Review Period (01/01/2007 to 12/31/2013) No. Analyzed	Min	Max	Average	No. ND	Third Five-Year Review Period (01/01/2014 to 12/31/2018) No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<2.5	210	58.42	22	30	<10	<50	18.56	16	20	15	28	18.9	1	0
M06B	83	4	<250	76.26	7	29	<0.5	<50	19.38	16	21	20.4	29.2	25.68	0	0
M07A	86	<0.3	210	31.18	19	29	<2.5	<25	7.36	27	19	<2.5	<12.5	4.1	13	0
M07B	55	<2.5	33	8	16	28	<5	<25	5.22	28	21	1.8	<10	3.22	19	0
P410	84	12	52	25.7	3	29	2.6	25	17.09	6	21	<5	23.3	8.27	2	0
P411	54	<1	58	6.39	30	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.22	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	4.65	22	29	<2.5	<10	3.73	15	19	<0.5	6.2	3.69	2	0
M51B	76	<0.3	<1	0.24	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	0.6	<12.5	2.62	17	31	<2.5	<25	5.05	23	20	1.9	<5	1.8	11	0
M64B	60	<0.3	<1	0.28	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.3	<50	3.06	37	31	1.3	<50	8.27	30	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	0.2	<5	0.46	85	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.25	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.27	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.28	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.27	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.31	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	0.6	11	3.29	3	32	<0.5	<10	2.37	12	22	0.56	2.4	1.76	0	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.17	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	2.6	<25	8.38	3	29	<0.5	<10	4.98	3	20	3.1	4.3	3.79	0	0
M70B	55	<0.3	<5	0.65	54	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	1.34	9	31	0.8	<25	1.8	8	22	<0.5	1.2	0.92	1	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	0.6	<25	5.17	9	29	3.6	<25	3.85	25	20	<2.5	<5	2.09	17	0
M39A	87	0.1	<10	0.68	85	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	27	8.68	13	30	<0.5	<5	1.21	22	24	<0.5	<2.5	0.72	16	0
Upgradient Wells																
M56B	79	<0.3	<1	0.25	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<2.5	0.29	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.32	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.27	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-16
1,1-Dichloroethene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	8.75	81	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	9.49	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.3	<100	4.08	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.69	54	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<0.5	<50	2.34	65	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.3	<50	3.97	53	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.22	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	<25	1.12	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.3	<1	0.24	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.28	53	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.3	<1	0.28	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.04	88	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.42	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.25	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.27	84	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.28	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.27	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.31	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.3	<5	0.52	60	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.17	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.3	<25	2.54	22	29	<0.5	<10	2.22	16	20	1.8	3.1	2.26	1	0
M70B	55	<0.3	<5	0.74	37	30	<1	<5	1.38	23	22	0.67	<2.5	1.27	9	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.42	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	0.3	<25	1.7	42	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.68	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.3	<10	1.14	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.3	<1	0.25	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<2.5	0.29	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.32	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.27	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-17
1,2-Dichloroethane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<5	430	126.41	8	30	<10	<50	26.47	5	20	13.5	<25	16.91	1	0
M06B	83	9	590	181.12	2	29	<0.5	<50	26.94	8	21	24.9	49	39.26	0	0
M07A	86	<0.3	280	41.9	22	29	<2.5	<25	7.11	29	19	<2.5	<12.5	3.1	17	0
M07B	55	<0.3	47	5.33	35	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	42	160	95.5	0	29	11.8	116	84.02	1	21	10.5	112	32.38	0	0
P411	54	0.5	240	14.54	18	31	<5	<50	10.89	31	21	3	<25	5.42	18	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.1	<1	0.21	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	31	7.66	20	29	<2.5	<10	4.01	14	19	<0.5	17	9.29	2	47.37*
M51B	76	<0.3	<1	0.21	76	36	<0.5	<2.5	0.31	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<1.5	<12.5	5.69	9	31	4	<25	6.88	16	20	<2.5	6.2	4.46	2	0
M64B	60	<0.3	<1	0.21	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	0.4	<50	4.96	19	31	2.2	<50	8.38	28	26	<2.5	<10	2.08	24	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.39	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.21	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	0.2	<2.5	0.24	83	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.21	54	28	<0.5	<2.5	0.36	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.22	55	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.27	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.91	41	32	<0.5	<10	1.43	16	22	<0.5	0.72	0.42	11	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.17	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	20	69	32.99	2	29	1.3	26	13.48	1	20	4.4	9.6	7.51	0	0
M70B	55	<0.3	<5	0.56	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.3	<5	0.39	44	29	<0.5	<10	0.8	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.36	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	50	14.04	6	29	<5	<25	6.66	12	20	<2.5	<5	2.69	11	0
M39A	87	<0.1	<10	0.84	63	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.99	38	30	<0.5	<5	1.1	29	24	<0.5	<2.5	0.82	15	0
Upgradient Wells																
M56B	79	<0.3	<1	0.21	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<2.5	0.24	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.28	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.23	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

*As described in section 6.1.1 of the Five-Year Review, 1,2-Dichloroethane is a daughter compound that is expected to increase as parent compounds breakdown.

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-18
cis-1,2-Dichloroethene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	62	<5	510	171.33	3	30	24.8	160	101.98	0	20	<25	47.2	32.44	1	0
M06B	61	29	600	288.66	2	29	2.2	215	151.8	0	21	99.6	156	130.79	0	0
M07A	66	0.8	550	47.66	5	29	4	47.5	22.91	8	19	<5	47.3	20.03	1	0
M07B	40	5	<25	9.71	8	28	<5	<25	10.77	8	21	<10	19.5	15.34	1	0
P410	63	55	250	133.17	0	29	37.9	354	266.45	0	21	20.9	337	73.61	0	0
P411	39	1.4	400	20.35	13	31	6.5	<50	11.02	30	21	3.6	<25	7.02	13	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	72	<0.3	<1	0.24	72	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	66	<0.8	<25	6.87	12	29	<5	18.2	11.12	4	19	<0.5	33.2	17.85	1	57.89*
M51B	67	<0.3	<1	0.25	67	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<1.5	<12.5	6.05	6	31	8	<25	13.4	6	20	9.7	15	12.23	0	0
M64B	60	<0.3	<1	0.28	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	68	<0.5	<50	4.96	19	31	<2.5	<50	9.4	22	26	2.8	<10	5.52	2	0
Northeast Boundary Wells																
M30B	69	<0.3	<5	0.47	69	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	68	<0.1	<1	0.26	68	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	68	<0.3	<2.5	0.28	68	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.28	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.27	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	73	<0.3	<5	0.94	36	31	<0.5	<5	1.46	12	22	0.58	1.6	1.12	0	0
M37A	74	1.9	25	8.27	1	32	1.3	14.6	9.57	1	22	2.5	11.8	7.63	0	0
M52B	24	<0.3	<0.5	0.19	24	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	22	<0.3	<0.5	0.17	22	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	17	192	84.36	0	29	9.3	160	98.62	0	20	66	99	87.29	0	0
M70B	55	1.1	23	12.76	0	30	11	20.6	16.23	0	22	6.7	17	12.71	0	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.53	28	31	<0.5	<25	1.28	20	22	<0.5	1.4	1.11	1	0
Onsite Wells Along Crenshaw Boulevard																
M38A	68	6.6	100	44.82	0	29	20.5	61	36.53	0	20	19.9	30.3	24.73	0	0
M39A	68	<0.5	14	5.42	16	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	61	<0.5	267	60.77	2	30	0.5	46.7	20.26	1	24	0.53	42.6	23.87	0	0
Upgradient Wells																
M56B	69	<0.3	<1	0.26	69	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	63	<0.3	<2.5	0.3	63	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	59	<0.3	<5	0.35	59	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	57	<0.3	3.2	0.34	55	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

*As described in section 6.1.1 of the Five-Year Review, cis-1,2-Dichloroethene is a daughter compound that is expected to increase as parent compounds breakdown.

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-19
trans-1,2-Dichloroethene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006) No. Analyzed	Min	Max	Average	No. ND	Second Five-Year Review Period (01/01/2007 to 12/31/2013) No. Analyzed	Min	Max	Average	No. ND	Third Five-Year Review Period (01/01/2014 to 12/31/2018) No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<2	<125	15.35	47	30	<10	<50	14.95	19	20	12.8	28	18.04	1	0
M06B	83	1	<250	20.27	27	29	<0.5	<50	15.89	17	21	14.5	29.2	24.47	0	0
M07A	86	<0.3	<100	7.61	43	29	<2.5	<25	7.11	29	19	<2.5	<12.5	3.17	16	0
M07B	55	<0.5	<25	2.68	45	28	<5	<25	5.22	28	21	1.1	<10	3.09	20	0
P410	84	1.6	<50	9.16	9	29	2.9	28.9	18.37	5	21	3.2	28.8	6.2	6	0
P411	54	<0.3	<50	4.37	45	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.1	<1	0.23	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	<25	1.32	55	29	0.7	<10	2.05	22	19	<0.5	2.9	1.47	3	0
M51B	76	<0.3	<1	0.24	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.29	51	31	1.1	<25	4.63	28	20	0.88	<5	1.12	17	0
M64B	60	<0.3	<1	0.28	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.3	<50	2.02	86	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.44	86	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<2.5	0.26	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.27	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.28	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.27	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.31	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.3	<5	0.66	48	32	<0.5	<10	1.4	18	22	<0.5	1.2	0.79	3	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.17	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<1.5	<25	6.73	5	29	0.7	10	6.99	2	20	4.4	8	6.84	0	0
M70B	55	<0.3	<5	1.73	17	30	1	<5	1.89	17	22	1.4	2.9	1.79	8	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.42	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.3	37	4.2	14	29	4.1	<25	4.04	24	20	<2.5	<5	2.49	12	0
M39A	87	<0.1	<10	0.87	67	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	29.1	5.95	18	30	<0.5	5	1.96	15	24	<0.5	6.1	2.98	5	12.5
Upgradient Wells																
M56B	79	<0.3	<1	0.25	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<2.5	0.29	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.32	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.27	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-20
1,2-Dichloropropane

Palos Verdes Landfill
Los Angeles County, California

	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					
Well No.	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<2	<125	13.34	64	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<1.2	<250	15.58	51	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<100	5.56	72	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.5	<25	2.65	51	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<50	2.72	62	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	3.96	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.1	<1	0.27	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.25	71	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.3	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.4	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.12	88	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.46	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.28	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.31	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.35	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.43	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.3	<0.5	0.24	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.24	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.52	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.66	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.3	<25	1.17	64	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.76	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.38	67	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.3	<1	0.29	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<2.5	0.33	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.36	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.32	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-21
cis-1,3-Dichloropropene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	9.46	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	10.6	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<62.5	4.19	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.52	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<0.5	<50	2.18	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	3.88	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.1	<1	0.25	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.16	81	29	<0.5	<10	1.87	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.26	76	36	<0.5	<2.5	0.31	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.26	54	31	<0.5	<25	4.54	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.26	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.09	89	31	<0.5	<50	8.23	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.44	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.25	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.28	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.26	54	28	<0.5	<2.5	0.36	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.3	55	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.33	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.4	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.46	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.63	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.43	44	29	<0.5	<10	0.8	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.41	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	0.97	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.74	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.27	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.26	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.29	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.33	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.29	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-22
trans-1,3-Dichloropropene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	9.46	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	10.6	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<62.5	4.19	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.52	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<0.5	<50	2.18	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	3.88	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.1	<1	0.25	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.16	81	29	<0.5	<10	1.87	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.26	76	36	<0.5	<2.5	0.31	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.26	54	31	<0.5	<25	4.54	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.26	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.09	90	31	<0.5	<50	8.23	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.44	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.25	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.28	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.26	54	28	<0.5	<2.5	0.36	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.3	55	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.33	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.4	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.46	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.63	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.43	44	29	<0.5	<10	0.8	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.41	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	0.97	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.74	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.27	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.26	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.29	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.33	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.29	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-23
1,4-Dioxane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	19	<200	<500	295.26	2	31	230	530	301.81	0	20	249	319	277.6	0	0
M06B	18	<2	750	435.61	2	29	290	490	365.76	0	21	240	329	280.43	0	0
M07A	23	<10	<200	57.61	12	29	14.3	175	81.63	4	11	32.6	208	111.28	0	18.18
M07B	19	78	<200	85.32	6	29	66	122	97.23	0	21	93.1	139	106.28	0	5
P410	19	240	670	461.58	0	29	400	570	463.21	0	21	181	443	283.1	0	0
P411	19	120	<500	156.32	2	31	100	240	127.06	0	21	108	175	133.81	0	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	25	<0.5	<3	0.99	25	36	<2	<2	1	36	24	<0.4	<2	0.63	24	0
M49A	21	31	290	185.86	1	29	<20	294	234.76	1	20	2	264	164	0	0
M51B	23	<0.5	<4	1.03	23	36	<2	<2	1	36	23	<0.4	<2	0.65	23	0
M63B	18	16	170	95.11	1	31	74	108	84.79	5	20	58.8	87.3	79.05	0	0
M64B	23	<0.5	<10	1.14	23	31	<2	<2	1	31	25	<0.4	<2	0.65	25	0
PV03	21	<20	<200	52.71	14	31	<2	<200	52.8	6	26	36	75.3	59.57	0	0
Northeast Boundary Wells																
M30B	22	<0.5	<50	4.55	21	30	<2	<20	2.03	29	21	<0.4	<2	0.66	21	0
M33B	21	<0.5	<4	1.01	21	32	<2	<10	1.13	32	22	<0.4	<2	0.67	22	0
M35B	22	<0.5	<40	1.97	22	32	<2	<10	1.75	32	21	<0.4	<2	0.66	21	0
M66B	22	<0.5	<3	0.99	22	28	<2	<10	1.43	28	20	<0.4	<2	0.64	20	0
M67B	21	<0.5	<4	1.06	21	31	<2	<2	1	31	25	<0.4	<2	0.68	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	22	1.9	<20	2.55	15	31	<2	<20	4.93	7	22	5.5	10.8	7.78	0	0
M37A	28	<2	<20	3.84	15	32	<2	<20	5.77	9	22	1.8	6.4	5.14	0	0
M52B	1	<2	<2	1	1	14	<2	<2	1	14	20	<0.4	<2	0.64	20	0
M59B	No Data					18	<2	<2	1	18	24	<0.4	<2	0.67	24	0
M69B	20	3	<100	31.3	3	29	9.2	155	89.31	0	20	41.4	79.5	61.82	0	0
M70B	20	<2	<20	6.71	13	30	<2	<20	8.95	7	22	10	25.5	14.73	0	18.18
M71B	20	<0.5	<20	2.69	20	29	<2	<40	2.69	29	24	0.63	<2	0.96	13	0
M72B	20	1.2	<20	2.79	17	31	<2	<20	2.43	17	22	<0.4	3.7	2.7	2	0
Onsite Wells Along Crenshaw Boulevard																
M38A	20	15	<100	22.75	9	30	26	40	31.83	2	20	33.9	45.5	38.58	0	25
M39A	19	<20	140	87.58	1	29	97.9	247	149.87	0	22	160	240	202.73	0	0
M53B	21	14	150	41.76	0	30	23.2	82	40.29	0	25	26.4	89.8	48.14	0	4
Upgradient Wells																
M56B	22	<0.5	<10	1.11	22	30	<2	210	7.97	29	21	<0.4	<2	0.62	21	0
M58B	21	<0.5	<10	1.19	21	29	<2	<4	1.03	29	20	<0.4	<2	0.64	20	0
M60B	22	<0.5	<10	1.65	22	36	<2	<10	1.28	36	27	<0.4	<2	0.67	27	0
M62B	19	<0.5	<10	1.59	19	32	<2	<2	1	32	21	<0.4	<2	0.62	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-24
Ethylbenzene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	8.86	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	9.53	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.3	430	9.09	83	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.49	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<0.5	<50	2.17	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.3	<50	3.77	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.22	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	<25	1.12	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.3	<1	0.24	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.27	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.3	1	0.33	54	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.01	89	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	0.1	<5	0.42	86	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.25	85	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.27	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.28	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.28	54	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	9.5	0.41	90	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	300	3.72	89	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.17	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.3	<25	1.35	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.3	<5	0.62	54	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.42	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.3	<25	0.93	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.3	<10	0.71	82	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	37.5	11.31	6	30	<0.5	9.4	3.71	7	24	<0.5	4	1.88	7	0
Upgradient Wells																
M56B	79	<0.3	<1	0.25	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	69	<0.3	<2.5	0.29	69	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	67	<0.3	<5	0.33	66	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.28	64	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-25
Methylene Chloride

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<1250	64.3	73	30	<5	54	11.51	29	20	<10	<25	5.38	20	0
M06B	83	<2	<1500	63.39	76	29	<0.5	56	12.89	28	21	<5	<12.5	5	21	0
M07A	86	<1	<1250	23.33	75	29	<2.5	<25	7.67	26	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.5	<125	5.37	52	28	<5	<25	6.23	25	21	<0.5	<10	3.05	21	0
P410	84	<1	<500	8.28	82	29	<0.5	28	5.81	28	21	<2.5	<10	1.98	20	0
P411	54	<1	<50	6.19	48	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.5	<10	0.8	101	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<60	3.71	70	29	<0.5	<10	2.03	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	12	0.82	73	36	<0.5	<10	0.57	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	2.09	53	31	<0.5	28	5.39	29	20	<0.5	<5	1.1	19	0
M64B	60	<0.5	<10	0.65	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.5	<50	4.18	77	31	<2.5	190	14.7	28	26	<2.5	<20	2.31	26	0
Northeast Boundary Wells																
M30B	87	<0.5	<10	1.01	81	31	<0.5	11	2.08	28	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.5	<10	0.76	86	32	<0.5	<5	0.52	31	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.5	<10	0.71	84	32	<0.5	<5	0.78	30	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<10	0.75	54	28	<0.5	<10	0.59	27	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<10	0.58	55	31	<0.5	<10	0.4	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.5	16	0.91	85	31	<0.5	<5	0.81	30	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.5	<12.5	1.07	82	32	<0.5	<10	1.11	31	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<5	0.78	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	30	<0.5	<5	0.72	30	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	2.54	47	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	20	1.3	54	30	<0.5	<5	1.18	28	22	<0.5	<2.5	0.73	21	0
M71B	44	<0.5	<10	0.66	44	29	<0.5	<10	1.33	24	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<10	0.81	42	31	<0.5	<25	1.15	29	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	1.94	73	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	2	37	18.52	9	29	<0.5	14	4.2	25	22	<10	<25	9.72	22	0
M53B	68	<0.5	190	41.75	12	30	<0.5	5	1.26	28	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	78	<0.5	<10	0.73	78	30	<0.5	<10	0.49	29	21	<0.5	<0.5	0.25	21	0
M58B	69	<0.5	<10	0.7	68	29	<0.5	<5	0.59	28	20	<0.5	2.7	0.91	19	0
M60B	67	<0.5	<10	0.81	67	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<10	0.76	64	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-26
Tetrachloroethene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006) No. Analyzed	Min	Max	Average	No. ND	Second Five-Year Review Period (01/01/2007 to 12/31/2013) No. Analyzed	Min	Max	Average	No. ND	Third Five-Year Review Period (01/01/2014 to 12/31/2018) No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	1.2	<125	8.78	80	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	9.85	75	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.3	<100	6.42	64	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	0.4	<25	2.72	51	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	0.5	<50	2.86	46	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.3	<50	3.91	53	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.22	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	<25	1.12	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.3	<1	0.24	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.27	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.3	<1	0.28	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	0.1	<50	2.02	86	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.42	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.25	85	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.27	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.28	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.31	54	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.45	61	31	<0.5	<5	0.94	20	22	<0.5	0.82	0.62	3	0
M37A	90	0.8	16	5.39	3	32	<0.5	<10	1.79	15	22	<0.5	1.5	0.74	3	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	0.3	<0.5	0.18	30	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<1.5	<25	6.65	8	29	0.5	<10	2.72	8	20	0.98	3	2.03	2	0
M70B	55	2	10	5.61	6	30	2	5.3	3.85	2	22	<2.5	3.8	2.63	5	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.56	26	31	<0.5	<25	1.12	24	22	<0.5	0.7	0.55	3	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	0.9	34	10.66	12	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.5	<10	2.2	26	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	92	25.42	3	30	<0.5	12	3.49	7	24	<0.5	4.7	2.32	6	0
Upgradient Wells																
M56B	79	<0.3	1	0.34	67	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	3	0.44	61	29	<0.5	<5	0.59	27	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.32	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.32	63	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-27
1,1,2,2-Tetrachloroethane

Palos Verdes Landfill
Los Angeles County, California

	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					
Well No.	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	9.45	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	10.56	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<62.5	4.19	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.5	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<50	2.17	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	3.87	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.1	<1	0.26	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.17	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.26	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.27	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.27	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.06	90	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.44	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.26	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.28	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.27	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.3	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.32	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.4	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.44	54	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.62	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.43	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.41	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	1	79	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.74	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.26	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.26	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.29	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.34	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.29	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-28
Tetrahydrofuran

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	61	<2.5	<2500	248.86	45	30	<100	<500	140.6	25	20	<100	<250	115.35	6	0
M06B	61	<50	<5000	445.74	32	29	<5	<1000	160.16	23	21	<100	178	127.21	4	0
M07A	65	<5	7700	228.3	50	29	<25	<500	82.91	28	19	<25	<125	35.62	15	0
M07B	40	<2.5	350	57.83	36	28	<50	<250	56.7	28	21	11.3	<100	30.9	20	0
P410	62	<100	1900	648.86	4	29	25.5	<500	198.87	4	21	27.4	248	90.88	3	0
P411	38	<5	3500	253.37	15	31	<25	<500	129.53	29	21	48.6	<250	124.93	3	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	68	<0.5	<50	7.21	68	36	<5	<10	2.78	36	24	<5	<5	2.5	24	0
M49A	62	<1	470	162.23	16	29	<50	297	155.61	2	19	<5	81.4	40.17	3	0
M51B	67	<0.5	<40	6.76	67	36	<5	<25	3.61	36	23	<5	<5	2.5	23	0
M63B	54	<2	220	67.72	16	31	<25	<500	65.21	22	20	18.4	52.8	37.18	1	0
M64B	60	<0.5	<40	6.88	60	31	<5	<10	2.74	31	25	<5	<5	2.5	25	0
PV03	67	<10	<500	66.3	36	31	<25	<500	100.49	29	26	<25	<100	30.12	17	0
Northeast Boundary Wells																
M30B	67	<0.5	<50	9.42	67	31	<5	<100	17.9	31	21	<5	<25	6.67	21	0
M33B	65	<0.5	56	7.29	64	32	<5	<50	5.47	32	22	<5	<5	2.5	22	0
M35B	64	<0.5	<40	6.81	64	32	<5	<50	7.89	32	21	<5	<50	3.57	21	0
M66B	54	<0.5	<20	6.3	53	28	<5	<25	4.11	28	20	<5	<5	2.5	20	0
M67B	55	<0.5	21	7.26	53	31	<5	<20	2.9	31	25	<5	<5	2.5	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	70	<0.5	<50	7.86	70	31	<5	<50	8.79	31	22	<5	<5	2.5	22	0
M37A	69	<0.5	<50	9.13	63	32	<5	<100	13.93	22	22	<5	11.6	4.74	11	0
M52B	24	<5	<20	7.81	24	14	<5	<5	2.5	14	20	<5	<5	2.5	20	0
M59B	22	<10	<50	9.32	22	18	<5	<5	2.5	18	24	<5	<5	2.5	24	0
M69B	55	<20	<250	36.7	40	29	<5	<100	32.21	12	20	16.9	34.8	25.76	0	0
M70B	55	<0.5	<50	10.96	54	30	<5	<50	12.75	30	22	<5	<25	7.05	22	0
M71B	44	<0.5	<50	7.79	43	29	<5	<100	9.31	29	24	<5	<5	2.5	24	0
M72B	43	<0.5	<50	7.91	43	31	<5	<500	15.08	31	22	<5	<5	2.5	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	63	<10	<250	25.97	42	29	<25	<500	43.53	29	20	<25	<50	19.42	19	0
M39A	63	7	<100	20.5	60	29	<5	<200	38.97	29	22	<100	<250	97.16	22	0
M53B	61	<25	606	202.42	7	30	49.1	210	112.2	1	24	56.5	188	102.23	0	0
Upgradient Wells																
M56B	69	<0.5	<50	6.89	69	30	<5	<50	3.83	30	21	<5	<5	2.5	21	0
M58B	63	<0.5	<50	7.07	63	29	<5	<50	6.12	29	20	<5	<25	8.38	20	0
M60B	59	<0.5	<50	7.72	59	35	<5	<50	8.36	35	27	<5	<5	2.5	27	0
M62B	57	<0.5	<40	6.99	57	32	<5	<10	2.81	32	21	<5	<5	2.5	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-29
Toluene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006) No. Analyzed	Min	Max	Average	No. ND	Second Five-Year Review Period (01/01/2007 to 12/31/2013) No. Analyzed	Min	Max	Average	No. ND	Third Five-Year Review Period (01/01/2014 to 12/31/2018) No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1.5	<125	12.15	63	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	1	<250	15.21	43	29	<0.5	<50	11.92	28	21	<5	<12.5	5.12	20	0
M07A	86	<0.3	<125	7.13	64	29	<2.5	<25	7.11	29	19	<2.5	<12.5	3.05	18	0
M07B	55	<0.5	<25	2.75	54	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<0.5	<50	2.29	82	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.3	<50	3.89	53	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.3	1	0.23	103	36	<0.5	0.5	0.26	35	24	<0.5	1.1	0.29	23	4.17
M49A	81	<0.3	<25	1.16	76	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.3	3	0.28	74	36	<0.5	<2.5	0.33	35	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.28	53	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.3	10	1.05	47	31	<0.5	2	0.39	26	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.3	<50	2.14	85	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.3	<5	0.43	86	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.3	<1	0.26	85	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.3	<2.5	0.29	84	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	1	0.29	53	28	<0.5	<2.5	0.38	27	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	4	0.47	43	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.3	59	0.95	90	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.3	310	3.84	88	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.3	4	0.29	33	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.18	30	18	<0.5	0.8	0.4	11	24	<0.5	1.3	0.4	19	16.67*
M69B	55	<0.3	<25	1.45	45	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.3	<5	0.65	53	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.42	42	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.3	<25	1.01	68	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	0.6	<10	2.04	13	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	142	43.18	2	30	<0.5	21	3.87	11	24	<0.5	<2.5	0.62	19	0
Upgradient Wells																
M56B	79	<0.3	<1	0.25	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	69	<0.3	<2.5	0.29	68	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	67	<0.3	<5	0.34	65	35	<0.5	8	1.03	32	27	<0.5	1.1	0.38	22	0
M62B	65	<0.3	4	0.37	60	32	<0.5	0.7	0.26	31	21	<0.5	<0.5	0.25	21	0

*Detections of BTEX compounds (benzene, toluene, ethyl benzene, and xylene) in well M59B appear to be from a local source unrelated to the landfill.

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-30
Trichloroethene

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006) No. Analyzed	Min	Max	Average	No. ND	Second Five-Year Review Period (01/01/2007 to 12/31/2013) No. Analyzed	Min	Max	Average	No. ND	Third Five-Year Review Period (01/01/2014 to 12/31/2018) No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<2	<125	15.17	49	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	1	<250	21.04	37	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	0.4	100	29.88	21	29	<2.5	<25	7.54	26	19	<2.5	<12.5	3.05	18	0
M07B	55	1.4	<25	3.97	26	28	<5	<25	5.22	28	21	1.1	<10	3.09	20	0
P410	84	9	<50	17.56	7	29	2.3	<25	13.18	8	21	<2.5	17.8	4.55	8	0
P411	54	<1	<50	5.45	35	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.22	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	<25	1.41	55	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.71	11	0
M51B	76	<0.3	<1	0.24	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.47	35	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.3	<1	0.28	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.3	<50	2.45	58	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.42	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.25	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.27	84	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.28	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.29	54	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.8	54	31	<0.5	<5	1.48	14	22	0.71	1.5	1.11	0	0
M37A	90	1	25	9.5	6	32	<0.5	<10	3.17	9	22	0.79	4	2.63	0	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.17	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	7	35	20.27	2	29	1.5	21	14.52	1	20	9.3	12.6	10.78	0	0
M70B	55	2.9	16	8.89	1	30	<5	18.9	12.79	1	22	6.4	16	12.29	0	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.5	31	31	<0.5	<25	1.11	26	22	<0.5	0.84	0.71	1	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<10	53.2	27.82	4	29	7.8	<25	12.2	6	20	<5	11	7.23	1	0
M39A	87	0.4	12	4.6	13	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	16.2	5.03	19	30	<0.5	<5	1.09	29	24	<0.5	<2.5	0.79	16	0
Upgradient Wells																
M56B	79	<0.3	<1	0.25	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<2.5	0.29	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.32	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.27	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-31
1,1,1-Trichloroethane

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	9.8	82	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	11.07	82	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.5	<100	4.94	82	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.78	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<1	<50	2.32	84	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.5	<50	3.96	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.1	<1	0.27	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.5	<25	1.2	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.5	<1	0.29	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.4	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	<1	0.32	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2.15	87	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.46	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.29	85	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.31	84	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.34	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.35	90	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.43	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<0.5	0.25	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<0.5	0.25	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.5	<25	1.52	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.66	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.45	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.5	<25	0.99	83	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.77	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<10	1.39	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.5	<1	0.29	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.5	<2.5	0.33	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.5	<5	0.37	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.5	<2.5	0.32	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-32
1,1,2-Trichloroethane

Palos Verdes Landfill
Los Angeles County, California

	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					
Well No.	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<1	<125	8.74	83	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	83	<0.5	<250	9.5	83	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	86	<0.3	<100	4.08	86	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	55	<0.1	<25	2.49	55	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	<0.5	<50	2.19	80	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	54	<0.3	<50	3.77	54	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	91	<0.1	<1	0.23	91	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	<25	1.12	81	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	76	<0.3	<1	0.24	76	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.27	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.3	<1	0.28	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.1	<50	2	90	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.1	<5	0.42	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.1	<1	0.25	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.1	<2.5	0.27	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.28	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<2.5	0.27	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.1	<5	0.31	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.1	<5	0.39	90	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.3	<0.5	0.18	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.3	<0.5	0.17	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.3	<25	3.6	26	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.41	19	0
M70B	55	<0.3	<5	0.61	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.3	<5	0.44	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.42	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.3	<25	1.09	65	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.1	<10	0.68	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.3	<10	1.14	68	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.3	<1	0.25	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<2.5	0.29	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.32	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<2.5	0.27	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-33
Vinyl Chloride

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006) No. Analyzed	Min	Max	Average	No. ND	Second Five-Year Review Period (01/01/2007 to 12/31/2013) No. Analyzed	Min	Max	Average	No. ND	Third Five-Year Review Period (01/01/2014 to 12/31/2018) No. Analyzed	Min	Max	Average	No. ND	Criterion %
Onsite Wells Along Hawthorne Boulevard																
M06A	83	<5	6600	781.97	9	30	172	568	371.33	0	20	221	620	379.35	0	10
M06B	83	34	6000	955.86	1	29	2.9	399	248.55	0	21	288	681	442.76	0	66.67
M07A	86	<0.5	2800	279.24	20	29	<2.5	56.1	14.21	19	19	8.9	55	27.47	0	0
M07B	55	<0.3	<200	6.44	46	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	84	39	330	93.77	1	29	15	122	86.13	0	21	<5	105	19.68	4	0
P411	54	<0.5	<200	11.21	23	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	104	<0.3	<20	0.37	104	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	81	<0.3	110	31.85	16	29	4.9	22.6	12.36	1	19	<0.5	23.6	12.24	3	5.26
M51B	76	<0.3	<20	0.53	76	36	<0.5	<2.5	0.31	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<1	16	5.67	12	31	1.7	<25	4.71	28	20	0.71	<5	1.15	16	0
M64B	60	<0.3	<1	0.25	60	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	90	<0.3	<100	3.47	58	31	1.5	<50	8.27	30	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	87	<0.3	<20	0.58	87	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	86	<0.3	<20	0.4	86	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	85	<0.3	<20	0.44	85	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.3	<1	0.24	54	28	<0.5	<2.5	0.36	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.3	<5	0.29	55	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	91	<0.3	<5	0.35	91	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	90	<0.3	<20	1.37	33	32	<0.5	<10	1.04	31	22	<0.5	<0.5	0.25	22	0
M52B	34	<0.5	<1	0.32	34	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	31	<0.5	<1	0.3	31	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	1.2	31	11.26	12	29	<0.5	<10	1.53	23	20	<0.5	<2.5	0.69	7	0
M70B	55	<0.5	7	3.34	9	30	2	5.3	3.1	3	22	0.66	2.8	1.67	8	0
M71B	44	<0.3	<20	0.86	44	29	<0.5	<10	0.8	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.3	<5	0.39	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	83	<0.3	<25	4.67	24	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	87	<0.3	<20	0.91	87	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	68	<0.5	<100	2.99	50	30	<0.5	<5	1.07	30	24	<0.5	<2.5	0.54	24	0
Upgradient Wells																
M56B	79	<0.3	<20	0.39	79	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	70	<0.3	<20	0.45	70	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	68	<0.3	<5	0.35	68	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	65	<0.3	<20	0.45	65	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-34
m+p-Xylenes

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	60	<2	<125	12.47	60	30	<10	<100	21.08	30	20	<20	<50	10.75	20	0
M06B	60	1	<250	14.96	58	29	<1	<100	23.64	29	21	<10	<25	10	21	0
M07A	64	<0.5	<100	6.39	64	29	<5	<50	14.22	29	19	<5	<25	5.92	19	0
M07B	40	<0.5	<50	5.6	40	28	<10	<50	10.45	28	21	<1	<20	6.1	21	0
P410	61	<1	<50	4.05	61	29	<1	<50	10.55	29	21	<5	<20	3.81	21	0
P411	38	<0.5	<100	9.51	38	31	<10	<100	21.77	31	21	<5	<50	9.76	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	69	<0.5	<1	0.35	69	36	<1	<1	0.5	36	24	<1	<1	0.5	24	0
M49A	61	<0.5	<50	2.31	59	29	<1	<20	3.74	29	19	<1	<5	0.71	19	0
M51B	68	<0.5	<2	0.37	67	36	<1	<5	0.61	36	23	<1	<1	0.5	23	0
M63B	54	<0.5	<25	2.02	54	31	<1	<50	9.08	31	20	<1	<10	2.03	20	0
M64B	60	<0.5	5	0.7	51	31	<1	<1	0.5	31	25	<1	<1	0.5	25	0
PV03	65	<0.5	<100	4.92	64	31	<1	<100	16.47	31	26	<5	<20	4.04	26	0
Northeast Boundary Wells																
M30B	68	<0.5	<10	0.81	68	31	<1	<20	3.26	31	21	<1	<5	1.33	21	0
M33B	66	<0.5	<2	0.36	66	32	<1	<10	0.95	32	22	<1	<1	0.5	22	0
M35B	65	<0.5	<5	0.43	63	32	<1	<10	1.39	32	21	<1	<10	0.71	21	0
M66B	54	<0.5	<1	0.39	54	28	<1	<5	0.71	28	20	<1	<1	0.5	20	0
M67B	55	<0.5	<5	0.44	54	31	<1	<1	0.5	31	25	<1	<1	0.5	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	71	<0.5	<10	0.52	71	31	<1	<10	1.52	31	22	<1	<1	0.5	22	0
M37A	70	<0.5	<10	0.7	70	32	<1	<20	2.06	32	22	<1	<1	0.5	22	0
M52B	25	<0.5	<1	0.26	25	14	<1	<1	0.5	14	20	<1	<1	0.5	20	0
M59B	23	<0.5	<0.5	0.25	23	18	<1	<1	0.5	18	24	<1	<1	0.5	24	0
M69B	55	<0.5	<50	2.4	55	29	<1	<20	2.74	29	20	<1	<5	0.8	20	0
M70B	55	<0.5	<10	1.09	55	30	<1	<10	2.22	30	22	<1	<5	1.41	22	0
M71B	44	<0.5	<10	0.74	44	29	<1	<20	1.6	29	24	<1	<1	0.5	24	0
M72B	43	<0.5	<10	0.69	43	31	<1	<50	2.08	31	22	<1	<1	0.5	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	64	<0.5	<50	2.09	64	29	<5	<50	6.98	29	20	<5	<10	3.75	20	0
M39A	65	0.7	<20	1.53	59	29	<1	<25	7.1	29	22	<20	<50	19.43	22	0
M53B	62	<1	50.2	15.84	10	30	<1	<10	3.22	19	24	<1	<5	2.05	12	0
Upgradient Wells																
M56B	70	<0.5	<1	0.36	70	30	<1	<10	0.65	30	21	<1	<1	0.5	21	0
M58B	64	<0.5	<5	0.44	64	29	<1	<10	1.14	29	20	<1	<5	1.68	20	0
M60B	60	<0.5	<10	0.55	59	35	<1	<10	1.47	34	27	<1	<1	0.5	27	0
M62B	58	<0.5	<5	0.44	56	32	<1	<1	0.5	32	21	<1	<1	0.5	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.
Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.
Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

TABLE B-35
o-Xylenes

Palos Verdes Landfill
Los Angeles County, California

Well No.	First Five-Year Review Period (01/01/1987 to 12/31/2006)					Second Five-Year Review Period (01/01/2007 to 12/31/2013)					Third Five-Year Review Period (01/01/2014 to 12/31/2018)					Criterion %
	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	No. Analyzed	Min	Max	Average	No. ND	
Onsite Wells Along Hawthorne Boulevard																
M06A	60	<2	<125	9.76	60	30	<5	<50	10.54	30	20	<10	<25	5.38	20	0
M06B	60	<0.5	<250	12.59	59	29	<0.5	<50	11.82	29	21	<5	<12.5	5	21	0
M07A	64	<0.5	<100	4.93	64	29	<2.5	<25	7.11	29	19	<2.5	<12.5	2.96	19	0
M07B	40	<0.5	<25	3.28	40	28	<5	<25	5.22	28	21	<0.5	<10	3.05	21	0
P410	61	<1	<50	2.99	61	29	<0.5	<25	5.28	29	21	<2.5	<10	1.9	21	0
P411	38	<0.5	<50	5.33	38	31	<5	<50	10.89	31	21	<2.5	<25	4.88	21	0
Downgradient Wells Along Hawthorne Boulevard																
M26A	69	<0.5	<1	0.29	69	36	<0.5	<0.5	0.25	36	24	<0.5	<0.5	0.25	24	0
M49A	62	<0.5	<25	1.45	62	29	<0.5	<10	1.88	29	19	<0.5	<2.5	0.36	19	0
M51B	68	<0.5	<1	0.3	68	36	<0.5	<2.5	0.32	36	23	<0.5	<0.5	0.25	23	0
M63B	54	<0.5	<12.5	1.41	54	31	<0.5	<25	4.55	31	20	<0.5	<5	1.01	20	0
M64B	60	<0.5	2	0.42	53	31	<0.5	<0.5	0.25	31	25	<0.5	<0.5	0.25	25	0
PV03	66	<0.5	<50	2.76	65	31	<1	<50	8.24	31	26	<2.5	<10	2.02	26	0
Northeast Boundary Wells																
M30B	68	<0.5	<5	0.52	68	31	<0.5	<10	1.63	31	21	<0.5	<2.5	0.67	21	0
M33B	66	<0.5	<1	0.3	66	32	<0.5	<5	0.47	32	22	<0.5	<0.5	0.25	22	0
M35B	65	<0.5	<2.5	0.33	65	32	<0.5	<5	0.7	32	21	<0.5	<5	0.36	21	0
M66B	54	<0.5	<1	0.32	54	28	<0.5	<2.5	0.37	28	20	<0.5	<0.5	0.25	20	0
M67B	55	<0.5	<5	0.35	55	31	<0.5	<1	0.26	31	25	<0.5	<0.5	0.25	25	0
Downgradient Wells Along Crenshaw Boulevard																
M36A	71	<0.5	<5	0.38	71	31	<0.5	<5	0.76	31	22	<0.5	<0.5	0.25	22	0
M37A	70	<0.5	<5	0.48	70	32	<0.5	<10	1.03	32	22	<0.5	<0.5	0.25	22	0
M52B	25	<0.5	<0.5	0.25	25	14	<0.5	<0.5	0.25	14	20	<0.5	<0.5	0.25	20	0
M59B	23	<0.5	<0.5	0.25	23	18	<0.5	<0.5	0.25	18	24	<0.5	<0.5	0.25	24	0
M69B	55	<0.3	<25	1.53	55	29	<0.5	<10	1.37	29	20	<0.5	<2.5	0.4	20	0
M70B	55	<0.5	<5	0.66	55	30	<0.5	<5	1.11	30	22	<0.5	<2.5	0.7	22	0
M71B	44	<0.5	<5	0.48	44	29	<0.5	<10	0.81	29	24	<0.5	<0.5	0.25	24	0
M72B	43	<0.5	<5	0.46	43	31	<0.5	<25	1.04	31	22	<0.5	<0.5	0.25	22	0
Onsite Wells Along Crenshaw Boulevard																
M38A	64	<0.5	<25	1.21	64	29	<2.5	<25	3.49	29	20	<2.5	<5	1.88	20	0
M39A	65	<0.5	<10	0.95	65	29	<0.5	<12.5	3.55	29	22	<10	<25	9.72	22	0
M53B	62	<0.5	24.2	7.16	13	30	<0.5	8.2	3.24	11	24	<0.5	9.2	3.77	5	4.17
Upgradient Wells																
M56B	70	<0.5	<1	0.31	70	30	<0.5	<5	0.33	30	21	<0.5	<0.5	0.25	21	0
M58B	64	<0.5	<2.5	0.34	64	29	<0.5	<5	0.57	29	20	<0.5	<2.5	0.84	20	0
M60B	60	<0.5	<5	0.39	60	35	<0.5	<5	0.7	35	27	<0.5	<0.5	0.25	27	0
M62B	58	<0.5	<2.5	0.34	57	32	<0.5	<0.5	0.25	32	21	<0.5	<0.5	0.25	21	0

Concentrations in micrograms per liter. Averages calculated using 1/2 detection limit for NDs.

Min - minimum; Max - maximum; ND - non-detect; " < " - less than; na - not applicable, insufficient data.

Criterion % - percentage of recent concentrations exceeding maximum historic concentration or maximum historic detection limit.

APPENDIX C
FIVE-YEAR REVIEW SUMMARY FORM

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: **Palos Verdes Landfill**		
EPA ID: **N/A**		
Region: **N/A**	**State:** **CA**	**City/County:** **Rolling Hills Estates, Los Angeles County**

SITE STATUS	
NPL Status: Non-NPL	
Multiple OUs? No	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: State **If "Other Federal Agency" was selected above, enter Agency name:** California Environmental Protection Agency, Department of Toxic Substances Control (DTSC)
Author name (Federal or State Project Manager): Daniel K. Zogaib
Author affiliation: DTSC
Review period: 1/1/2014 – 12/31/2018
Date of site inspection: 5/8/2019
Type of review: Policy
Review number: 3
Triggering action date: January 6, 2015
Due date *(five years after triggering action date)*: June 2019

Five-Year Review Summary Form (continued)

The table below is for the purpose of the summary form and associated data entry and does not replace the two tables required in Section VIII and IX by the FYR guidance. Instead, data entry in this section should match information in Section VII and IX of the FYR report.

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
Not applicable

Issues and Recommendations Identified in the Five-Year Review:

OU(s): Not applicable	**Issue Category:** Choose an item.			
	Issue: Click here to enter text.			
	Recommendation: Click here to enter text.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
Choose an item.	Choose an item.	Choose an item.	Choose an item.	Enter date.

To add additional issues/recommendations here, copy and paste the above table as many times as necessary to document all issues/recommendations identified in the FYR report.

Protectiveness Statement(s)
Include each individual OU protectiveness determination and statement. If you need to add more protectiveness determinations and statements for additional OUs, copy and paste the table below as many times as necessary to complete for each OU evaluated in the FYR report.

Operable Unit: Not applicable	*Protectiveness Determination:* Choose an item.	*Addendum Due Date (if applicable):* Click here to enter date.
Protectiveness Statement: Click here to enter text.		

Sitewide Protectiveness Statement (if applicable)	
For sites that have achieved construction completion, enter a sitewide protectiveness determination and statement.	
Protectiveness Determination: Protective	*Addendum Due Date (if applicable):* Click here to enter date.

Protectiveness Statement:
Long-term protectiveness of the remedial action has been verified by the assessment of routine monitoring data for groundwater, surface air, and subsurface gas. Overall, the third Five-Year Review assessment found that the remedy is functioning as intended, the remedial action objectives used at the time of remedy selection are still valid, and no other information has come to light that calls into question the protectiveness of the remedy.